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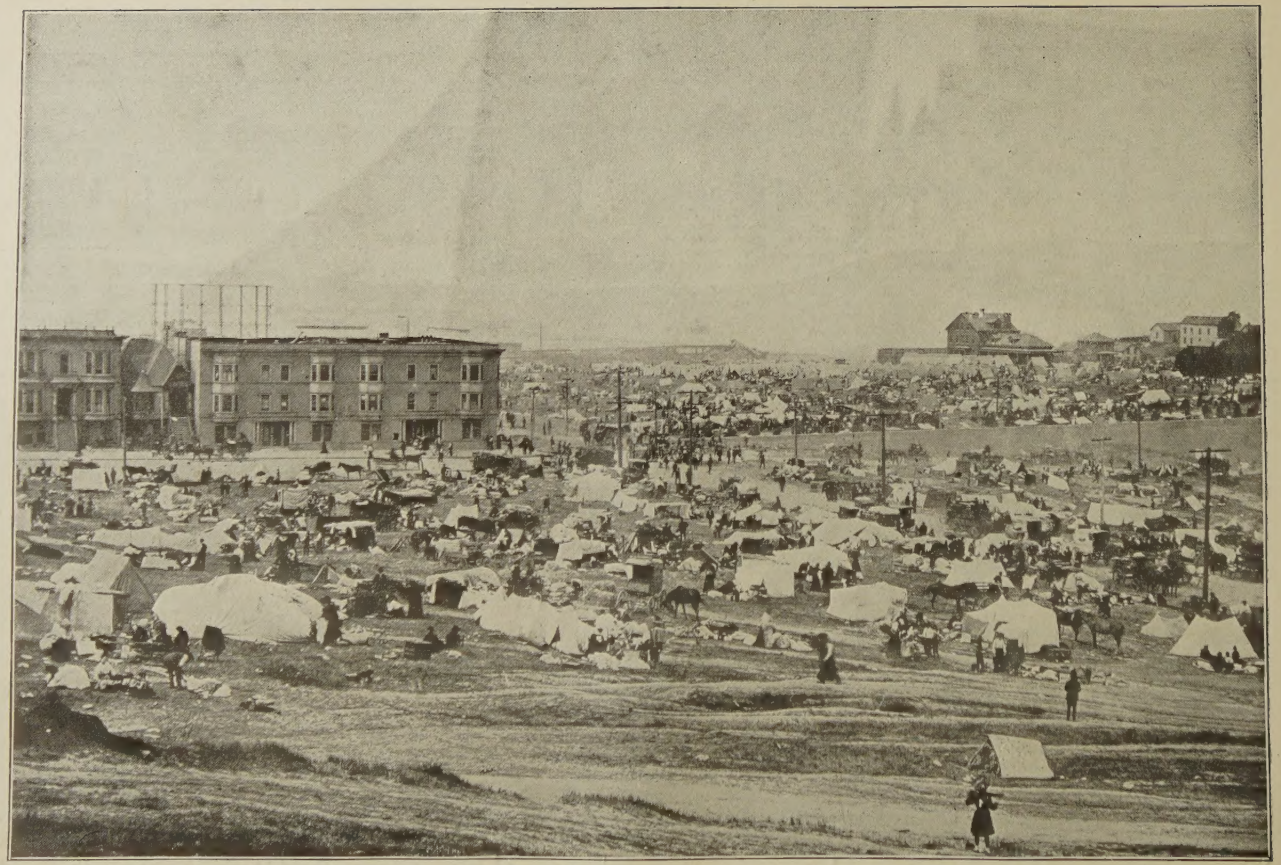

REFUGEES' CAMPS AT NORTH BEACH, NEAR FORT MASON.
The people fled from their homes to the nearest open ground, where tents were erected out of sheets, quilts, etc., for shelter.

THE HISTORY

OF THE

San Francisco Disaster

AND

Mount Vesuvius Horror

BY

CHARLES EUGENE BANKS

AND

OPIE READ

Two of America's leading Authors.

A Complete and Authentic Account of the Terrible Calamity that befell the City of the Golden Gate, Stricken by Earthquake and Devastated by Fire. Described and Penned by Eye-witnesses and those who Worked to Relieve the Suffering.

A Vivid Account of the Eruption of Mount Vesuvius and other great Historical Catastrophes which have Destroyed Thousands of Lives and Laid Whole Countries in Ruin.

Illustrated with Photographic Scenes

of the Great Disasters and Stricken Districts.

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PREFACE.

Strike one section of the world a terrible blow and all other sections have their deepest sympathies immediately centered in that spot. It is this fact that keeps alive man's belief in the universal brotherhood of the race.

A tragedy such as that which now overtops all others of its kind, and which in the short space of its action transformed San Francisco from the most beautiful American city into a wilderness of woe and desolation, must stir every human heart to deepest pity. In the soft dawn of the morning a series of seismic waves ran down the coast line from the north, their force culminating at San Francisco Bay. As a result more than one thousand lives were lost, several thousand men, women and children wounded, and three hundred thousand people rendered homeless.

The scenes of terror that followed the breaking loose of so much force and fire in one spot cannot be realized by any single intelligence. To describe it in words would be to picture all that has ever been dreamed of Heaven and Hell.

But the great throbbing heart of humanity that has felt this indescribable tragedy, the great Christian world listens for the voice that shall tell of the suffering and sacrifice, the woe and the goodness born of that woe, the pathetic tale of the destruction of San Francisco.

Following close upon the eruption of Vesuvius on the other side of the world the San Francisco disaster found the country busy raising funds for the homeless Neapolitans. The Golden Gate city was engaged in this work when of a sudden it became the subject of the world's bounty.

And well has the world responded. The tremors of the earth under the devastated city were not stilled when trains and boats were on their way to relieve the distress caused by this unparalleled catastrophe. And the energy born of pity and brotherhood is not ephemeral; it is a continuous force and will not cease to act while there is one homeless family, or one destitute person within the ruined circle of what was until this disaster the happiest of American cities.

From such great disasters man discovers his own helplessness. With all his ingenious inventions he is more helpless than the wild animals he affects to despise. For they have an instinctive sense of approaching danger, a faculty scarcely known to man. It is the recognition of this truth that moves men to lean upon one another; to accept kindness without question and to in turn be helpful. The selfish have the most cause to fear, for they cannot know what hour fate may strip them of everything and leave them naked and destitute.

Nature does nothing by rule. All creation is one continual surprise. A leaf is formed and the pattern broken so that its exact counterpart will never appear again. But Truth, the great underlying principle upon which is formed the character of man, is unalterable. And out of that Truth comes the quality of helpfulness.

It is this world-wide quality of sympathy shown instantly upon the reports that San Francisco was being destroyed, that softens the horror of that unequalled calamity, and makes the record of the disaster a prophecy of good, rather than evil. It is the purpose of this book to give not only a correct account of the destruction of San Francisco, but of the super-generous efforts of the world to feed and clothe the hundreds of thousands of homeless and destitute, to give cheer and encouragement to the wounded and helpless, and to assist in rebuilding upon the beautiful bay a greater and more magnificent city.

The authors wish to acknowledge the great debt of gratitude they are under to the officials in charge at San Francisco, the press and telegraph, as well as the courtesy of hundreds of individuals who assisted in the gathering of information to make this book complete and accurate. Other writers besides those given credit in the text, who have lent great assistance, are Mr. Charles Ulrich, Mr. Edward W. Pickard, and Mr. Samuel C. Andrews, the latter having passed a large part of his life among the great volcanoes.

To tell the correct story of the great earthquake has not been all our ambition, but to incorporate in these pages the sublime spirit of America. It is not alone the cities of the United States that give utterance to the spirit of idealism that is making the nation great. It is in the farm and the garden as well as the mill, the store and workshop. It is this spirit that will rebuild and beautify San Francisco.

THE AUTHORS.

LOOKING DOWN KEARNY STREET TO MARKET.
This view shows the Claus Spreckels building in the background. The disaster left it all a mass of ruins.

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GREAT BUILDINGS FALL PREY TO FLAMES.

Conflagration Seizing Palace Hotel, Merchant's Exchange, Call, Chronicle and Crocker Buildings and St. Francis Hotel.

DEDICATED

to

SYMPATHETIC HUMANITY
WHICH AGAIN IN A SPONTANEOUS
OUTBURST OF UNSTINTED LOVE HAS PROVED
THAT MERCY
IS A LIVING FOUNTAIN IN THE
HEART OF MAN, AND THAT
ALL HEARTS ARE
ONE

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SAN FRANCISCO A BLAZING FURNACE.

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THE BUSINESS DISTRICT IN FLAMES.

Scene from Telegraph Hill while the conflagration was at its worst.

CHAPTER I

DESTRUCTION OF SAN FRANCISCO

Golden Gate City Wiped Out by Earthquake and Fire —First Shock Comes in Mysterious Twilight of the Dawn—Whole Population Rush Half-Clad Into the Streets to Find Themselves Helpless in the Presence of Fate—Great Sky Scrapers Topple to Ruin, Burying Hundreds in the Debris—Immense Conflagration Completes "The Wreck of Matter and the Crash of Worlds"—The Most Beautiful and Historic City of America Swept Into Oblivion.

On the morning of April 18, 1906, at 5:13 o'clock, San Francisco felt the first tremors of an earthquake shock that was destined to destroy the entire city.

In that mysterious hour of twilight that precedes the dawn of a new day the earth under the city heaved and rocked like a troubled sea.

Out of the deep sleep of the hour nearly four hundred thousand people awoke to see the result of a century of labor and genius crumble to dust and ashes as though touched by the magic wand of the Demon of Destruction.

The Golden Gate that had hitherto been the happiest of American cities was suddenly transformed into a place of woe. Shut off from the outside world, it became at once a bleeding, crying wilderness of fear, horror and death.

The San Francisco of yesterday had been peculiarly free from disaster. No great fires had leveled her buildings or pestilence invaded her homes. In the early days of '49, when the discovery of gold in that region brought a heterogeneous mass of humanity to 'Frisco, the wooden shacks which served at the time for business houses, and the tents that were the residences of the hardy adventurers of pick and shovel, were thrice swept away in conflagration. But the loss was ephemeral. The constant stream of gold that flowed into the town, and the liberality with which it was scattered soon overcame the temporary difficulties, and buildings of some pretentions went up at once over the ruins.

But during the last generation, while the city has grown with marvelous strides, the elements have been kind. Several incipient earthquakes have kept the people in mind of the chained force that crouched under the shell of earth and rock on which the city was built; but these served only to accustom the people to the danger and "come out and have a shake with me," became a familiar form of invitation from citizens to their eastern friends.

The New San Francisco rose white and graceful above the blue of the bay. Her palaces were the pride of the coast; her men brave, fearless, enterprising, noble and imaginative; her women beautiful, talented, and both men and women intensely human.

And now, at a moment when the eastern sky was tender with the coming dawn, when all the winds were gentlest and all the skies softest, at the very birth of new hopes and aspirations and activities, it seemed

doubly cruel that an unseen enemy should stretch out a hand of doom to blacken and torture and slay her sleeping children.

Two friars, Francisco Paulo and Pedro Cambon, in 1776, founded upon this magnificent bay a Catholic mission which became the cornerstone of the city of the Golden Gate. Could those holy fathers have looked into the future so far as to see the terror of this awful morning they must have hesitated and turned back with their little colony to Monterey, from whence they came. But the peaceful bay with its surrounding hills robed in luxurious verdure gave no presage of the unprecedented tragedy that one hundred and thirty years later was to be enacted there.

No other American city is so rich in historical romance as San Francisco. The bravest souls of the old world and the new have lived and loved, struggled and sacrificed, and left the marks of their individual characters upon the life of all that wonderful region. In the shadow of Mt. Shasta the gold seekers of '49 pitched their tents and inaugurated a commonwealth of camaraderie new in the history of the world, and simple as it was noble. Out of this spirit sprung a distinctly American literature which added to the illustrious names of the world those of Artemus Ward, Bret Harte, Joaquin Miller, Mark Twain, and many others who have followed in their footsteps. Here alone in all the Western World Art went hand in hand with Industry, and the physical expression of that dual life was San Francisco.

And in one awful hour all the results of that aspiration, toil, energy and genius were swept into oblivion,

and where on yester-night had stood a thriving metropolis the morning beheld nothing but ruin and desolation.

For several days previous to the shock in San Francisco Mt. Rainier, which rises like a mammoth mountain of snow over Puget Sound far to the north, had been in eruption. A pillar of smoke rose high into the clear air of that region from the apex of the mountain, and low rumblings were heard in the interior by isolated miners living on its side, and some fear was felt by the cities of Seattle and Tacoma. The recent Vesuvius horror caused speculation among scientists as to the probability of that far-away seismic cataclysm being the cause of the Rainier disturbance. Yet little attention was paid to the matter. Rainier is sixty miles or more from any settlement, and while it is known to be of volcanic origin it has never been considered dangerous.

So the pillar of smoke to the far north that might have proved a warning grew and swelled and faded away to no purpose. Business and pleasure filled the minds and hearts of the people of the coast cities. Ambition, greed, passion and hate fought the never-ending fight with courage, liberality, patience and love, and the everlasting blue of heaven looked on at the struggle.

Man, believing himself master of his fate, laughed and danced, argued and coaxed, bought and sold, deceived and was deceived, until worn out with conflicting emotions he laid himself down to woo the "sleep that knits up the raveled sleeve of care" and fell a-dreaming of the triumphs of the morrow.

Such was the San Francisco that the mighty wave sweeping through the earth picked out of its bed and tossed whithersoever it would. It touched the giant steel structures and left them dangling like broken skeins of yarn above their cracked and broken foundations. Its waves swelled under the great Palace Hotel and its walls fell outward as though the building were a paper toy. China Town, with its swarm of orientals, living half above and half under ground, melted into dust and ashes, even as the visions of the opium smoker fade with his awaking. Statues that had been the pride of the city fell crashing to ruin. Churches waved their tall spires in the air and then threw them like giant spears far into the night. Telegraph wires parted, water mains burst and fire and water mingled with elemental force to complete the destruction.

And out into that groaning, tossing, tumbling chaos rushed three hundred thousand persons, a half naked and wholly crazed throng of humanity, praying, cursing, weeping, begging and denying, the children of men helpless in the presence of the forces of Nature they had thought to have made their slaves. The whole scene was so crowded with the huge and astonishing that anything beyond the simplest chronicle of the known facts would be worse than useless. From the dawn of the day of the first shock until the force of the military, working in conjunction with the civil authorities, had brought order out of chaos, there was not a moment within the confines of that poor, doomed city but had its own separate tragedy; its own act of heroism; its own sublime sacrifice.

The San Francisco quake which shook to earth most of the principal buildings of the city, and the conflagration which followed, conspire to make this catastrophe the greatest in the history of the United States. In point of property loss and loss of life only three catastrophes in the annals of America can compare with it. They are the great Chicago fire of 1871, the Galveston hurricane and tidal wave of 1900, and the Johnstown flood. In the first 200 persons lost their lives and there was a property loss of $190,000,000. In the second 7,000 persons died and $30,000,000 worth of property was destroyed. In the Johnstown flood thousands of lives were lost and many millions of dollars in property destroyed.

In San Francisco the loss of life will probably reach three thousand persons, and the loss of property amount to $500,000,000. One of the most beautiful cities in America is practically wiped out of existence. The two greatest forces known to man, vibration and fire, were joined and let loose to work this awful destruction. And following these came the gaunt figures of starvation and disease to complete the horror of the situation.

The earthquake, with its gigantic undulations that cause an indescribable sickness, passed, and fear was giving place to returning hope when the whole city seemed to burst into flames. The electric wires, torn from their fastenings had the loose ends flung high in the air to fall in a tangle, like lightning falling out of the sky. These set fire to hundreds of buildings at once and what the quake had spared the flames devoured.

Like some terrible monster with the cunning of a devil the earthquake had in advance of the fire broken the water mains and the inhabitants could only stand dumbly by, looking upon the destruction of their beautiful city, and the total dissipation of individual fortunes. It was like a nightmare from which they strove in vain to awake.

While this supreme tragedy was being enacted in San Francisco, other coast cities were falling. For hundreds of miles along the coast the people felt the shock, and some towns, like Palo Alto with the Leland Stanford University buildings, and Santa Rosa, were utterly wiped out. Oakland, across the bay, lost heavily in art treasures, most of the statues and paintings on the walls and in the public and private buildings being ruined. All stone buildings were badly damaged, but there was no loss of life. Watsonville, Redwood, Napa, Santa Cruz, San Jose, Monterey, Los Angeles, Hollister, Brawley and Berkeley were more or less damaged. The Spreckels' sugar factory at Salinas was leveled and many lives lost. As far away as Honolulu the shock was felt and for several days after the great quake lesser shocks were reported in other parts of California and Oregon.

CHAPTER II

AWFUL RESULTS OF FIRST SHOCKS

Earthquake Topples Over Great Buildings—Thousands Buried in Debris—Cataclysm Comes Without Warning—Magnificent City Hall Wrecked—Terror-stricken Population Rushes Into the Streets—Poorer Residence Districts Razed—Famous Cliff House and Sutro Baths Escape.

Just as San Francisco was waking to life and work, at 5:13 o'clock, the earth swayed, and much of the city fell in ruins. Nature had unchained one of her most dreaded forces of destruction. Great buildings of stone and iron toppled over and thousands of wooden structures were shattered. For almost five minutes the awful rolling motion continued. The inhabitants, shrieking and maddened by panic, fled from their homes into the streets, unclad, only to be buried in the debris of the crashing walls. A few moments later came another terrific shock to complete the work of devastation. Great crevices opened in the streets under the very feet of the fleeing people, who knew not where to turn for safety. The roar of falling buildings, the screams of the injured, explosions of gas mains and the instant breaking out of countless fires added to the fearful scene.

The first shock came without warning save a slight reverberating roar, the motion of the earth being from

east to west. The upheaval was gradual, and for a few seconds it seemed as if the entire city was being lifted slowly upward, and then, after perhaps five seconds of the sickening rising sensation the shock increased in violence.

Chimneys began to fall, the houses trembled violently, swayed, and some fell with crashes.

Buildings tottered on their foundations. Some rose and fell, and, when falling, the fronts or sides burst out as if from explosions, hurling tons of brick, mortar and timbers into the streets. Great rents opened in the ground.

Those who remained indoors generally escaped death, except in cases where the entire buildings collapsed, although hundreds were hurt by falling plaster, pictures, or flying glass.

Many of the city's finest buildings had fallen prey to the earthquake before the conflagration reached them. First in the list is the City Hall, a magnificent structure recently completed at a cost of $7,000,000, after twenty years of work. It was about the last building in San Francisco that might have been expected to yield to an earthquake shock. It was a white stone building with extensive wings and a very fine dome. This great steel-ribbed dome was stripped of its covering by the shock; the magnificent pillars fell to the ground, immense fissures appeared in the walls and the entire building was wrecked in the space of three minutes. In Market Street, near the City Hall, the earth was ripped open and a chasm six feet wide was left to show the power of the disturbance.

The tallest building in the city, and one of the first

to suffer from the shock, was the Spreckels Building, on the same side of Market Street as the Palace Hotel and a block further west. It was a sixteen-story building, surmounted by a dome of imposing proportions from which might be obtained a fine view of the entire city. It was virtually wrecked by the earthquake and its tenants, including the force of the San Francisco Call, fled in dismay. The Examiner Building, close by, was shaken to its foundations.

The Pacific Mutual Life Insurance Company's handsome building at California and Sansome Streets was one of the most imposing in the city, costing nearly $500,000. It was ruined by the quake and fire. Another well known building wrecked was the Phelan Building, at the junction of Market and O'Farrell Streets. This building was not one of the modern structures, but it occupied important Market Street frontage.

Few of the buildings destroyed were better known to the visitors to San Francisco than the old California fish market, with its al fresco restaurants and appetizing displays of fish, game, fruits and meats.

The tall steel frame structures stood the strain of the earthquake better than brick buildings, few of them being badly damaged. The big eleven-story Monadnock office building, in course of construction, adjoining the Palace Hotel, was an exception, however, its rear wall collapsing and many cracks being made across its front. Some of the docks and freight sheds along the water front slid into the bay. Deep fissures opened in the filled-in ground near the shore.

The new postoffice, one of the finest in the United States, was badly shattered.

The Valencia Hotel, a four-story wooden building, sank into the basement, a pile of splintered timbers, under which were pinned many dead and dying occupants of the house. The basement was full of water and some of the helpless victims were drowned.

The sheds over the Southern Pacific's long wharf on San Francisco Bay collapsed. The bunkers fell into the bay, carrying with them thousands of tons of coal. The long wharf was one of the most important shipping points about the bay.

Among the early reports from the shattered city was one that declared the famous Cliff House had succumbed to the force of the earthquake and had fallen into the sea with all its occupants. Fortunately, this proved to be untrue. The great pleasure resort and show place and the magnificent Sutro Baths near by sustained no damage beyond broken windows.

The Cliff House stands on a rocky bluff overlooking the Pacific Ocean. It is fifty or sixty feet above the water and has been a resort for thousands, both in winter and in summer. It is a favorite pastime of visitors there to sit on the west verandas of the hotel and watch the hundreds of sea lions and seals which congregate on large rocks about 200 feet from the mainland. In stormy weather waves frequently break over the top of the building.

Among the other buildings destroyed or partly destroyed were the Sunset Building, in Bush Street; the Western Union Telegraph Building, at Pine and Montgomery Streets; the Pacific States Telephone

Building and the Rialto, in New Montgomery Street, between Howard and Mission Streets, near the Palace Hotel; the Natoma Building, at Second and Market Streets, and the Nevada Bank Building. The last named was not a modern structure, but unusual interest attached to it because of its financial strength and its earlier history in connection with the bonanza days of the Comstock. The Hibernian Bank, while in the damaged district, was a comparatively modern building, and withstood the shock and fire.

Davis Street, Front Street, Battery Street, Sansome, Montgomery, Kearny, Spear, Main, Beale and Fremont Streets—all were in the area of the earthquake's greatest fury.

The cheap tenement-house districts suffered terribly. Old buildings, constructed in the days of redwood and dilapidated and tottering, collapsed with a succession of roars. Fires appeared in the ruins, and the fire fighters were powerless to extinguish the flames.

The old Dolores Mission, the first building erected by the Spanish priests who founded the city 130 years ago, escaped destruction by the earthquake. The new mission, a much larger building alongside the old one, was badly shattered.

"No one will ever adequately describe the grandeur and the horror of the scene," said A. D. Evans of New Brunswick, N. J. "I saw buildings fly up in the air and become fragments, like shells hurled from mammoth guns. I saw wrought-iron and steel twisted and bent in the strangest conceivable shapes. I saw streets and pavements become rucks and hollows.

"At the time of the first shock I was asleep in my room on the third floor of the Maryland Hotel, which is six blocks west of the Palace Hotel and directly opposite Union Square, where the Dewey Memorial stood. When the shock came I was hurled from my bed to the floor and was covered with plaster from the ceiling. I rushed for the stairway. My door had been thrown wide open. As I went down the hall I heard the cries of women in a room adjoining mine. I threw myself against the door and broke it open, releasing two women. They ran down the hall with me and escaped."

"When we reached the street hundreds of people in all stages of dress and undress were frantically running around, wringing their hands and crying. The first thing I noticed was that the huge iron pillars of the Dewey Memorial were twisted like strands of wire and that they were bent to the ground in at least three different directions, showing the direction of the earth waves.

"I happened to look toward the Call Building, which loomed up in the distance, and suddenly from the sixth floor of that building there was a burst of greenish flame. In an instant the entire building was a mass of flames from top to bottom.

"As there was no apparent indication of further harm, and as the Maryland Hotel was still intact, I ran back to the building and into my room. I put on my clothing and took my money from my trunk. I then went downstairs again.

"Passing through the halls of the hotel I saw groups of men and women sitting on the floor, and in every

conceivable attitude of distress and helplessness. No one seemed to know what to do.

"I went to the hotel proprietor, who was trying to reassure the guests, and was talking to him when there was another tremor of the earth, and with it the people in the hotel made a mad rush for the street. In this one woman was killed and three were so badly injured that they died later in the square opposite the hotel.

"I started for the Oakland ferry and as I went down the street the soldiers from the Presidio were already surrounding the bank buildings, and the United States mint resembled a small fortification. The street car tracks were upturned, and in many instances the rails were broken cleanly in two. There were holes in the street that varied from two or three inches to two feet, while in many places the asphalt was bulged up in huge bubbles, like miniature balloons, indicating, I was informed later, the tremendous pressure of the gas below."

"My room was in the Grand Hotel," said another man. "When I awakened the house was shaken as a terrier would shake a rat. I dressed and made for the street, which seemed to move like waves of water. On my way down Market Street the whole side of a building fell out and came so near me that I was covered and blinded by the dust. Then I saw the first dead come by. They were piled up in an automobile like carcasses in a butcher's wagon, all over blood, with crushed skulls and broken limbs, and bloody faces.

"A man cried out to me, 'Look out for that live wire.' I just had time to sidestep certain death. On each side of me the fires were burning fiercely. I

finally got into the open space before the ferry. The ground was still shaking and gaping open in places. Women and children knelt on the cold asphalt and prayed God would be merciful to them. At last we got on the boat. Not a woman in that crowd had enough clothing to keep her warm, let alone the money for fare. I took off my hat, put a little money in it, and we got enough money right there to pay all their fares."

CHAPTER III

FLAMES SWEEP THE DOOMED CITY

Conflagrations Break Out at Scores of Points—Fire Department Helpless—Water Mains Broken by Quake—Many Buildings Blown Up by Dynamite in Effort to Check Flames—Government Troops Batter Down Blocks With Cannon—Fire Spreads Remorselessly to Residence Districts Until Almost the Entire City Is Consumed.

Shattered by the earthquake and crumbling to her fall, San Francisco had yet to suffer the crowning affliction that wiped her out of existence. Following instantly upon the shocks of the early morning, flames seized upon the devoted city, and in thirty-six hours great San Francisco had been reduced to a waste of ashes and twisted iron.

The heroic efforts of the firemen were rendered unavailing from the first by lack of water. The earthquake had burst the mains throughout the city and the department was helpless. High winds from the Pacific Ocean drove the flames before them and the conflagration swept over the place in a storm of fire. Oakland and other neighboring cities sent fire apparatus, but it was returned as useless.

In this dire strait resort was had to dynamite, artillery and giant powder. Scores of buildings in the path of the fire were blown up in ineffectual efforts to check

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THE FIRE ON THE FIRST DAY.

The fire is sweeping down Main Street. The Examiner building is just catching. The people have rushed to the streets awaiting developments; one lady is in tears.

COOKING ON THE STREETS.

The inhabitants of San Francisco were not allowed to cook in their houses, as every chimney must be tested before it can be used. The earthquake destroyed all the chimneys and the people therefore had to cook on the streets.

its progress. The awful bombardment was kept up all the day and night of Wednesday and until Thursday evening. Then the supply of explosives was nearly exhausted. The government arsenals had been emptied of their stocks and quantities hurried in from other cities had been used in vain.

It was evident that practically the entire city was doomed and even the most sanguine then gave up hope. Block after block of great office buildings, hotels, theaters, factories and warehouses melted away like wax in the terrific heat. All the quaint foreign quarters turned to ashes in a few minutes. With mighty leaps the conflagration spread in a dozen directions and rapidly ate its way into the residence districts. Palatial houses on Nob Hill, and other high portions of the city were swallowed in the maelstrom of fire. Only the more sparsely settled outlying districts were saved.

Fire Chief Sullivan was fatally hurt by the earthquake shock, and Assistant Chief Dougherty took up the hopeless task of staying the flames. Many experienced fire fighters from other cities went to his assistance, but they predicted early that the entire city would be consumed.

Scarcely had the earth ceased to shake Wednesday morning when fires broke out simultaneously in many places. The fire department promptly responded to the first calls for aid, but it was found that the water mains had been rendered useless by the underground movement. Fanned by a fair breeze, the flames quickly spread, and soon many blocks were seen to be doomed. Then dynamite was resorted to.

The sound of frequent explosions added to the ter-

ror of the people. All efforts to stay the progress of the fire, however, proved futile. The south side of Market Street from Ninth Street to the bay was soon ablaze, the fire covering a belt two blocks wide. On this, the main thoroughfare of the city, were located many of the finest edifices in the city, including the Grant, Parrott, Flood, Call, Examiner, and Monadnock Buildings, the Palace and Grand Hotels, and numerous wholesale houses.

At the same time the commercial establishments and banks north of Market Street were burning. The burning district in this section extended from Sansome Street to the water front and from Market Street to Broadway. Fires also broke out in the Mission and the entire city seemed to be in flames.

The fire swept down the street so rapidly that it was practically impossible to save anything in its way. It reached the Grand Opera House on Mission Street, and in a moment had burned through the roof. The Conried Metropolitan Opera Company of New York, which had just opened a two weeks' engagemnet, lost its entire consignment of valuable scenery, and the artists suffered heavily in the loss of personal baggage.

The Grand Opera House was one of the oldest theaters in San Francisco. It was located on Mission Street, between Third and Fourth, and for a number of years was the leading playhouse of the city.

From the opera house the fire leaped from building to building, leveling them almost to the ground in quick succession. The Call editorial and mechanical departments were totally destroyed in a few minutes,

and the flames leaped across Stevenson Street toward the fine fifteen-story stone and iron Claus Spreckels Building, which, with its lofty dome, was the most notable edifice in San Francisco. Two small wooden buildings furnished fuel to ignite the splendid pile. Thousands of people watched the hungry tongues of flame licking the stone walls.

At first no impression was made, but suddenly there was a cracking of glass and an entrance was effected. The interior furnishings of the fourth floor were the first to go. Then, as though by magic, smoke issued from the top of the dome. This was followed by a most spectacular illumination. The round windows of the dome shone like so many full moons; they burst and gave vent to long, waving streamers of flame. The crowd watched the spectacle with bated breath.

For a time it was believed the Palace Hotel, being surrounded by streets, might be saved. But the guests and employes fled in haste and soon the massive building was in flames. The Occidental Hotel, the Crocker-Woolworth National Bank Building and the immense D. O. Mills Building also succumbed.

The Parrott Building, in which were located the chambers of the State Supreme Court, the lower floors being devoted to an immense department store, was ruined, though its massive walls were not all destroyed. A little further down Market Street the Academy of Sciences and the Jennie Flood Building and the History Building kindled and burned like so much tinder.

Sparks carried across the wide street, ignited the Phelan Building and the army headquarters of the De-

partment of the Pacific, General Funston commanding, were burned.

Still nearing the bay along the docks, the fire took the Rialto Building, a handsome skyscraper, and converted scores of solid business blocks into smoldering piles of brick.

Banks and commercial houses, supposed to be fireproof, though not of modern build, burned quickly, and the roar of the flames could be heard even on the hills which were out of the danger zone. Here many thousands of people congregated and witnessed the awful scene. Great mountains of flames rose high in the heavens, or rushed down some narrow street, joining midway between the sidewalks and making a horizontal chimney of the former passageways.

The dense smoke which arose from the entire business district spread out like an immense funnel and could have been seen for miles out at sea. Occasionally, as some drug house or place stored with chemicals was reached, most fantastic effects were produced by the colored flames and smoke which rolled out against the darker background.

Shortly after midnight Wednesday the streets about Union Square were attacked by the conflagration. Eager spectators watched for the first red streamers to appear from the windows of the great dry goods stores. Smoke eddied from under window sills and through cracks made by the earthquake in the cornices. Then the cloud grew denser. A puff of hot wind came from the west, and as if from the signal there streamed flamboyantly from every window in the top floor of the structure billowing banners, as a poppy

colored silk that jumped skyward in curling, snapping breadths, a fearful heraldry of the pomp of destruction.

From the copper minarets on the Hebrew Synagogue behind Union Square tiny green, coppery flames next began to shoot forth. They grew quickly larger, and as the heat increased in intensity there shone from the two great bulbs of metals sheathing an iridescence that blinded like a sight into a blast furnace.

With a roar the minarets exploded almost simultaneously, and the sparks shot up to mingle with the dulled stars overhead. The Union League and Pacific Union Clubs next shone red with the fire that was putting them.

On three sides ringed with sheets of flame rose the Dewey Memorial in the midst of Union Square. Victory tiptoeing on the apex of the column glowed red with the red flames. It was as if the goddess of battle had suddenly become apostate and a fiend linked in sympathy with the devils of the blaze.

Next the flames swept the houses of the Bohemian, Pacific, Union and Family Clubs, the best in San Francisco, and the beautiful St. Francis Hotel. With them were obliterated the huge retail stores along Post Street; St. Luke's Church, the biggest Episcopal church on the Pacific Coast, and the priceless Hopkons Art Institute.

Thursday morning dawned on a scene of utter desolation in the business heart of the city, and the fire was still raging, eating its way into the residence districts by a dozen paths. The wind had changed to the west and the flames were moving in a wide swath from the

water front on the north of Market Street toward Nob Hill, the most aristocratic quarter of the city. Slowly but surely the conflagration made its way up the slope, and as it passed, it left behind the blackened ruins of the Stanford, Flood and Crocker residences and scores of other beautiful homes, and the new Fairmount Hotel.

Desperate efforts were made to save the priceless pictures in the Hopkins Art Institute. A young lieutenant of artillery took his stand in front of the institute when the fire first started, commandeered every vehicle that came near, and pressed into service every able bodied man in the vicinity to remove the paintings and sculpture from the bulding. When any one demurred the officer drew his gun and forced him to obey his orders.

Paintings were removed by hundreds and placed on the broad lawn of the Stanford mansion next to the institute on the east, but as the whole district soon was swept by flames, the treasures were destroyed.

In the Mission District, to the south of Market Street, the zone of ruin was extended farther westward. Near Fourteenth and Mission Streets were the Southern Pacific Hospital, the St. Francis Hospital and the College of Physicians and Surgeons. In the effort to save these institutions buildings all around them were blown up by dynamite, but in vain.

Mechanics' Pavilion, the scene of hundreds of great political, social and sporting events, was burned to the ground. Wednesday this had been converted into a hospital, and 400 injured persons were being cared for there by physicians and nurses. When the flames ap-

proached all these sufferers were loaded into wagons and taken to places of safety in the outskirts. It was believed for a time that the injured had been roasted to death in the blazing pavilion, but this horrible fate was averted by the heroism of the medical attendants, who refused to leave until their patients had all been rescued.

Thursday afternoon, while Nob Hill was still burning, Mayor Schmitz and Chief of Police Dinan decided that the only hope of saving the Western Addition, with its forest of frame dwellings, and the Richmond District, with its thousands of homes, was to check the march of the wall of fire at Van Ness Avenue, which crosses the city from north to south.

This avenue is 90 feet wide and the possibilities of checking the march of the flames here looked hopeful to those who were figuring on ways and means.

Orders were given to concentrate every fire engine in the city at this avenue, to marshal troops of soldiers there, the police, and all the army of workers, and make one last stand to save the remainder of the city.

The co-operation of the artillery was secured and huge cannons were drawn to the avenue by the military horses to aid the dynamiters in blowing up the mansions of the millionaires on the west side of Van Ness in order to prevent the flames from leaping across the highway and starting on their unrestrained sweep across the Western Addition.

Every available pound of dynamite was hauled to this point, and the sight was one of stupendous and appalling havoc, as the cannons were trained on the

palaces and the shot tore into the walls and toppled the buildings in crushing ruins.

All that afternoon and evening the steady booming of artillery and the roar of dynamite was heard above the howl and cracking of the flames. Beyond Van Ness Avenue and Filbert the flames did not find enough material to feed upon and seemed to be dying down gradually. But all day Friday the weary firemen kept up the fight, checking the spread of the fire wherever possible. The wind shifted again that day and blew the flames back over the burned district. Then, late in the afternoon another horror threatened. A gale from the northwest set in and by 7 o'clock in the evening the conflagration, with its energy renewed, was sweeping over fifty acres of the water front north and west of Telegraph Hill. Fleeing from their homes in the section known as North Beach, ten thousand men, women and children, most of them foreigners, sought refuge in the neighborhood of Meiggs and Fisherman's Wharves, where it seemed that all must perish. At the same time the Union Ferry Depot, the sole means of egress from the city, was threatened, as well as the water front emergency hospital.

The firemen still at work in other quarters of the city were hastily summoned to combat the new danger. Hundreds of sailors from United States warships and hundreds of soldiers joined in the battle, and from midnight until dawn men fought fire as never fire had been fought before. Fire tugs drew up along the water front and threw immense streams of water on to the flames of burning factories, warehouses, and sheds.

Blocks of buildings were blown up with powder, gun-

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IN THE WHOLESALE FRUIT DISTRICT.

Streets filled with debris of fallen buildings and bodies of dead horses.

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SCENE ON MISSION STREET.

Twisted steel beams and shattered walls where great buildings stood.

RUINS OF ST. DUNSTAN'S HOTEL, VAN NESS AVE.
This large fashionable hotel contained thousands of dollars worth of property belonging to the leaders of society in San Francisco.

TWENTY SQUARE MILES OF FIERCE BLAZING FIRE.

cotton, and dynamite, or torn down by men armed with axes and ropes. All night long the struggle continued. Mayor Schmitz and Chief of Police Dinan, although without sleep for forty-eight hours, remained on the scene all night to assist army and navy officers in directing the fight.

By 7 o'clock Saturday morning this tremendous battle had been won. The Ferry Building and the docks in its immediate vicinity had been saved. On the North Beach the fire did not reach that part of the water front lying west of the foot of Powell Street.

The burned area was about seven square miles in extent, and twenty-six miles in circumference. Within this vast waste of smoldering embers were three oases where buildings were preserved by wonderful exertions and good fortune. One of these was the district bounded by Montgomery, Battery, Jackson and Washington Streets. Within this district is the appraiser's building, in which was stored some $500,000 worth of valuable wares belonging to the importing merchants of San Francisco. The saving of this and the adjoining buildings is ascribed to the heroic endeavors of Captain Wolf and his men of Company D, Twenty-second United States Infantry, who, with such means as they had at hand, succeeded in fighting off the devouring element.

On the summit of Telegraph Hill a score of houses and six flat buildings were left standing.

The third spot unburned lies in the Latin Quarter on the east and south slopes of Telegraph Hill, where some 300 houses remain to attest the efficiency of the juice of the grape in quenching flames. The only avail-

able water supply was found in a well dug in early days. At a critical moment the pump suddenly sucked dry, and the water in the well was exhausted.

"There is a last chance, boys," was shouted, and Italian residents crashed in their cellar doors with axes, and, calling for assistance, began rolling out barrels of red wine. The cellars gave forth barrel after barrel until there were fully 500 gallons ready for use.

Then barrel heads were smashed in and the bucket brigade turned from water to wine. Sacks were dipped in the wine and used for beating out the fire. Beds were stripped of their blankets, and these were soaked in the wine and hung over the exposed portions of the cottages, and men on the roofs drenched the shingles and sides of the houses with wine. And the wine won.

A landmark of the city that escaped destruction, though every building surrounding it was burned, is the United States Mint, at the corner of Fifth and Mission Streets. Harold French, an employe of the mint, gave a graphic account of how the flames were successfully fought. He said:

"Nearly $20,000,000 in coin and bullion are stored in the vaults of the mint and for the preservation of this prize a devoted band of employes, reinforced by regular soldiers, fought until the baffled flames fled to the conquest of blocks of so-called fireproof buildings.

"For seven hours a sea of fire surged around this grand old federal edifice, attacking it on all sides with waves of fierce heat. Its little garrison was cut off from retreat for hours at a time, had such a course been thought of by those on guard. The United States Mint was constructed in 1874 of granite and sand-

stone blocks, massive monoliths, well calculated to resist fire from without. Within, however, were enough inflammable materials to feed a lively conflagration. Iron shutters shielded the lower floors, but the windows of the upper story, on which are located the refinery and assay office, were exposed. Also a tarred roof over the refinery constituted a weak spot in the defense. Tanks of wood and other inflammable material scattered about the roof and upper story were a serious menace.

"After the fire had swept past the Mission Street side and the certainty of its returning from the north became apparent, Captain of the Watch Laws ordered everything on the roof that would burn thrown into the yard. Soldiers and mint employes worked with utmost haste, throwing great timbers and tank staves into the court.

"Here are located some thirty tanks of blue vitriol, the surfaces of which soon were covered with debris, into which increasing showers of cinders fell. Fortunately, the mint possesses a good well, and Engineer Brady pumped water to the fire fighters assembled on the roof. Of these forty were mint employes, and they were aided by a company of coast artillery.

"As the fire swept up Fifth Street the heat increased to a dangerous degree as, one by one, the Metropolitan Hall and the historic Lincoln School burst into flames, reinforced by the roaring furnace of the Emporium. On the west the block bounded by Sixth and Market Streets on the north gave the gravest concern, for from this quarter the fire was certain to rage in its fury.

"Fanned by a roaring northerly wind, the flames

rioted through the structures stretching from the Windsor Hotel to the Emma Spreckels Building, sheets of fire of 200 feet high licking up the intervening houses on Mint Avenue. Augmented by these tinder boxes the blast of fire burst on the northwest corner of the mint like the breath of a second Pelee.

"A few desperate fighters under ex-Chief Kennedy of Oakland were driven from between the tottering chimneys, under whose twin terrors they had struggled to the last, throwing buckets of water upon the blazing roof over the refinery. It is largely due to the experience of former Chief Kennedy that this tar covered roof, the weakest spot of all, was saturated with sufficient water to stay the flames.

"When the fire leaped Mint Avenue in solid masses of flame the refinery men stuck to their windows as long as the glass remained in the frames. Seventy-five feet of one-inch hose played a slender stream upon the blazing window sill, while the floor was awash with diluted sulphuric acid. Ankle deep in this, soldiers and employes stuck to the floor until the windows were shattered.

"With a roar the tongues of fire licked greedily the inner walls. Blinding and suffocating smoke necessitated the abandonment of the hose and the fighters retreated to the floor below. The roar of falling walls, the thunder of bursting blocks of stone, the din of crashing glass, swelled to an unearthly diapason. If thirteen inch shells were crashing against the mint walls the deafening detonations and the force of their impact would scarcely have exceeded the fury of the attack. Down in the deeps, where untold wealth is so

well safeguarded, artillerymen, ringed with blanket rolls and leaning on their rifles, coughed in the strangling smoke.

"Then came a lull; the walls of brick buildings across the street had all fallen. There was yet a fighting chance, so back to the upper story the fire fighters returned, led by Superintendent Leach, who, by example and words, encouraged his men to extinguish the blazing inner woodwork of the refinery.

"The roof was next swept by a hose, cooling the copper sheathed surface until it became passable for wet, acid soaked feet. An army officer, ax in hand, tore up sections of blazing tar roof, beneath which a stream of water was directed. At length, as 4 o'clock drew near, the mint was pronounced out of danger, and a handful of exhausted but exultant employes stumbled out on the hot cobblestones to learn the fate of their homes."

As a result of the earthquake and fire the number of dead was estimated at from 3,000 to 5,000; the injured numbered 15,000 and 300,000 persons were made homeless.

The area burned over was ten square miles; city blocks destroyed 1,000. The property loss was estimated at $400,000,000.

CHAPTER IV

REIGN OF TERROR

Mad Panic Seizes the Citizens—Martial Law Is Proclaimed—General Fred Funston Takes Charge—Government and State Troops Patrol Streets—Shooting of Ghouls and Thieves—Hunger, Thirst and Fears of Epidemic—Lunatics From Shattered Asylum Tied to Trees.

Mad, unreasoning panic seized upon the citizens of San Francisco long before they realized the extent of the awful disaster that had befallen them. Most of the people were asleep when the first earthquake shocks brought their homes tumbling about their heads. In an instant thousands of unclad men, women and children were rushing about the streets, screaming, weeping and calling frantically for aid.

People would run forward, stop as another shock, which might be greater any moment, seemed to take the earth from under their feet, and throw themselves face downward on the ground in a perfect agony of fear.

It seemed two or three minutes after the great shock was over before people found their voices. There followed the screaming of women, beside themselves with terror, and the cries of men.

With one impulse all made for the parks, as far as possible from falling walls. These speedily became

packed with people in their night clothes, who screamed at the little shocks which followed every few minutes.

The dawn was just breaking, but there was no other light, for the gas and electric mains were gone and the street lamps were all out. But before the dawn was white there came a light from the east—the burning of the warehouse district.

Where the effect of the shocks was greatest the bodies of the dead and injured lay in the debris of the ruined buildings. For a time the entire population was distracted with terror. Then the masterful men of the city, headed by Mayor Schmitz, took control. And none too soon, for the ghouls and vandals that are ever ready to prey upon the misfortunes of others had begun their dastardly work. Drunken denizens of the city's foulest districts already were slinking about, robbing the bodies of the dead.

Martial law was put in force quickly and troops from the Presidio, the Thirteenth Infantry from Angel Island, the Coast Artillery, and the local regiments of the state militia were soon patrolling the streets, directing the refugees and driving out suspicious characters. General Frederick Funston, in command of the Presidio Reservation, was on the scene soon after daylight and gave the soldiers orders to shoot down any persons seen robbing the dead or injured, looting stores or committing other acts of vandalism. These orders were carried out to the letter. A score of ghouls caught plundering the victims of the disaster were killed in their tracks and their bodies were consigned to the flames of some burning building without

any further formality. Early on Wednesday a policeman saw a wharf rat crawling through the window of a bank and shot him dead. Despite these drastic measures the thieves and thugs continued their horrible work, perpetrating every crime on the calendar from murder to arson, and looting hundreds of homes that had been deserted by their owners in the mad rush to points of assumed safety.

In several instances thieves were run through with bayonets and their bodies left lying where they had fallen, to become food for the oncoming flames.

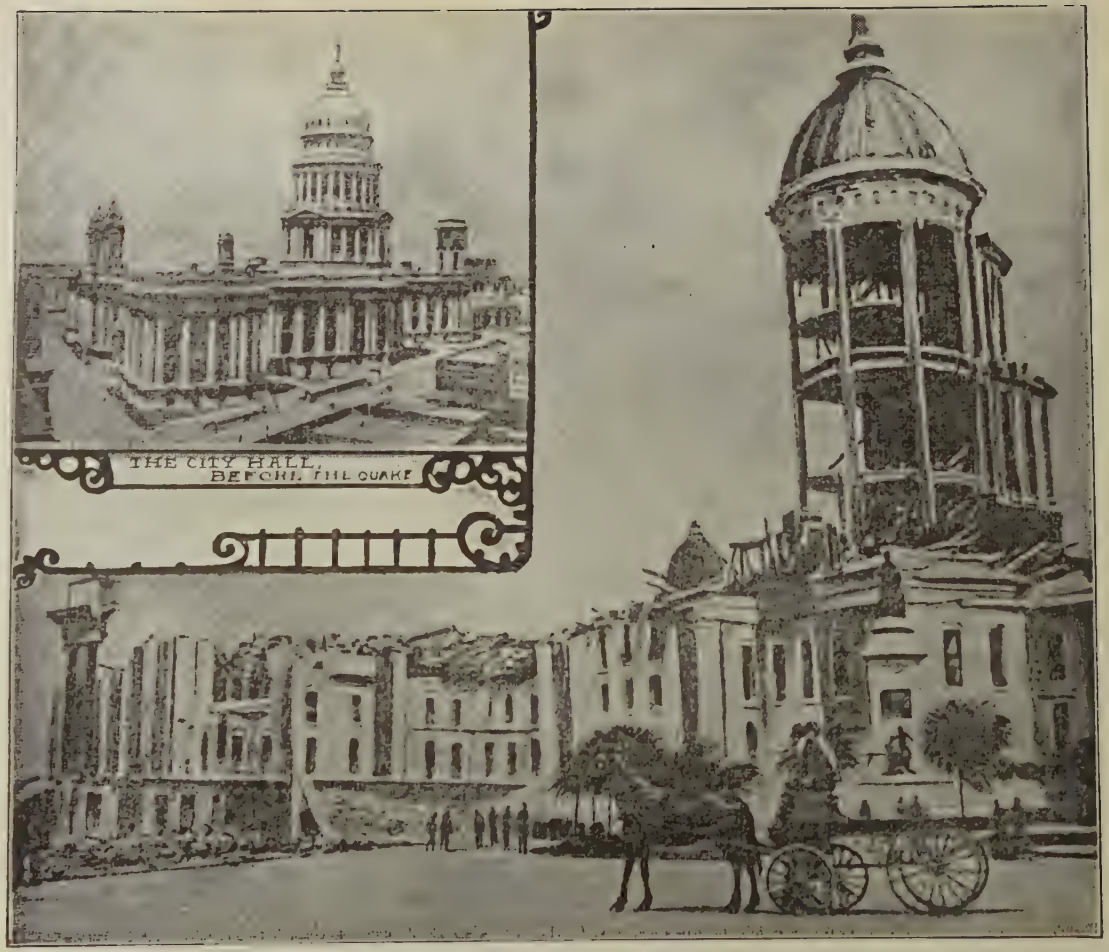
At one place on Thursday, five men were shot—two killed and three badly wounded. The troops had thrown open a corner grocery with the usual order that the crowd might carry off all it contained except the liquors. A large party of men made a rush for the place and emerged with quantities of whisky. When called upon to drop them, they failed to obey and a volley was fired upon them.

No mercy was shown to those that defied calls to halt. The rifle was leveled with the first order, and, on the failure of a second command to stop the offender, it was discharged.

One man on Market Street, who was found digging in the ruins of a jewelry shop, was discovered by a naval service man and fired upon three times. The fellow sought safety in flight, but the reserve man brought him down by running his bayonet through him.

The most distressing result of this determination to prevent disorder and enforce obedience was the killing, Sunday night, of H. C. Tilden, one of the most

IN THE PATH OF THE FLAMES.
California Street two hours after the quake. The fire is just crossing the street on its journey of death and ruin.



THE MAGNIFICENT CITY HALL WRECKED BY EARTHQUAKE.

This splendid Public building which cost $7,000,000 was destroyed in less than two minutes.

prominent members of the general relief committee. He was shot in his automobile by members of the citizens' patrol. Hugo Altschul, who was in the automobile, was cut in the face by a bullet and another ball pierced the seat and struck R. G. Seaman, acting lieutenant of the Second Company of the Signal Corps, in the back. The force of the bullet had been spent and Seaman, who had been detailed on special duty with Tilden, picked the ball out of his cartridge belt.

Tilden was a prominent commission merchant of this city, a major on the governor's staff, and was one of the foremost workers in the general relief work. He had taken his three children and a nurse from the Fourteen Mile House, where they had been since the earthquake, to Menlo Park, where he had a summer cottage. His automobile had been used as an ambulance in conveying sick and wounded to the hospitals and was carrying the Red Cross flag. Besides this he had the Red Cross insignia on his right arm.

According to Acting Lieutenant Seaman, Tilden was his own chauffeur, and left Menlo Park about 9 o'clock. At Twenty-eighth and Guerrero Streets they were challenged by the first chain of patrols, and upon calling out, "Red Cross!" were allowed to pass. At Twenty-fifth Street a second guard challenged them, and immediately gave way upon perceiving the Red Cross flag. At Twenty-second Street six men stood in the middle of the road, separating when the car got within fifty feet of them. When within ten feet of the guard they began shooting without warning or challenge, and kept up firing after the car had passed

them. Shots from in front took no effect, with the exception of a bullet grazing the face of Tilden's friend.

"The machine had gone about fifty feet past the patrol," said Seaman, "when the car stopped suddenly. Tilden fell over toward me, saying, 'Well, they got me—they killed me,' flopped back in the seat and rolled out of the car. I sprang up and fired five shots in quick succession at those who were still shooting behind us."

Soon hunger and thirst were added to the torments of the stricken populace. Many thousands, scantily clad, spent days in the parks and outskirts of the city, practically without food or drink, before relief could reach them. Scores succumbed to this suffering and privation and were added to the death roll of the great disaster. Great warehouses full of food-stuffs that had been counted on to feed the famishing were consumed by the flames Thursday and for many hours the railroads could not bring in the supplies of food contributed by other cities. The waterworks and mains having been destroyed, it was necessary to carry water long distances to places where the injured had been collected. In many instances the precious fluid was sold at exorbitant prices by conscienceless persons, while men and women were going mad with thirst.

Men, greedy beyond belief, also sought to fatten upon the dire misfortune of others by charging extortionate prices for food. Bread was sold for $1 a loaf and canned goods for $1.50 a can. But the authorities soon put an end to this. In shops out of the path

of the flames orders to sell goods at the usual prices were enforced at the point of the bayonet. Where the places could not be saved from the flames, they were thrown open by the soldiers and the hungry crowds were told to help themselves.

Before the fire Armour & Co. had a large number of refrigerator cars full of provisions of various sorts standing on the tracks at the wharves. When it became evident that these could not be saved, a flock of "wharf rats" and hoodlums were permitted to go in and take everything they wanted. A wild scramble ensued, the men and boys fighting desperately for the food. In a few moments every car was empty.

The soldiers and police broke into every shop that contained intoxicating liquors and poured all such drink into the gutters. Had it not been for their prompt and inexorable action in this regard, the ruined city must have suffered from an awful reign of drunkenness and crime.

Other extortionists were the possessors of vehicles of all kinds. They demanded, and often received, outrageous prices for conveying persons to points of safety, but here, too, the authorities intervened. Wagons were seized by the soldiers whenever they could be found and the protests of the owners were unheeded.

One of the startling incidents of the disaster was the report, following the destruction of the State Insane Asylum at Agnew, that hundreds of lunatics were at large and were making their way into the city. The story was unfounded, for the attendants at the asylum bravely stood to their posts and until shelter could be

provided they tied scores of the more dangerous maniacs to trees in the grounds surrounding the asylum.

In the monster encampment of refugees at Golden Gate Park about fifty infants first saw the light of day. The lack of food and medical attendance for mothers and babies resulted in great distress, but Friday quantities of milk and infants' food was sent over from Oakland, a place was set apart for maternity cases and physicians detailed to this special work.

Insanitary conditions among the homeless caused the gravest fear that an epidemic of disease would break out. This added infliction was averted only by the prompt action of the authorities, as detailed in another chapter.

Horrible and pathetic incidents were so frequent during the earthquake and conflagration that they passed almost unnoticed. Mackenzie Gordon, the singer, leaping from his bed at the first shock, saw a window rise in the seventh story of an apartment house opposite his hotel and a naked man leaped from it. At the fourth floor the man's leg caught in the fire escape and was torn out at the hip, the body falling to the pavement below.

One man was caught under the ruins of the Temple of Justice. He was frightfully injured and being pinned down by a huge timber, could not escape. For a time soldiers and police worked hard to release him, but the flames drove them away and the wretched man, already scorched, begged a policeman to kill him. The officer fired a shot at him, but missed. Then a pedestrian rushed up, cut the arteries in the man's wrist, and he died.

Five firemen were crushed to death Wednesday night while fighting the flames. They were caught beneath the debris of a building which collapsed.

At midnight Wednesday thirty persons were imprisoned in an apartment-house. The firemen cut through the walls with their axes, determined if possible to rescue the imprisoned people. A hole big enough to permit the passage of a man was made in the wall and R. C. Durie, a San Francisco fireman, thrust through his arm and was assisting a young girl to safety when the roof of the structure collapsed. Durie escaped with his life, but the thirty imprisoned persons were killed.

Many persons were made insane by the terrible calamity that had overtaken them and their city and the horrible sights they witnessed. It was found necessary to establish a detention hospital in the basement of the Sacred Heart School, conducted by the Dominican Sisters at Fillmore and Hayes Streets. One crazy Chinaman, who was being cared for at the Presidio Hospital, was killed by a delirious federal patient, his skull being crushed by an iron bar.

Fear of contagion and pestilence led to the hasty burial of all dead bodies where they were found. Soldiers commandeered the services of civilians, and the victims of the disaster were interred in trenches all over the city, in public squares, in vacant lots and in jagged holes made by the earthquake shock. The remains of rich and poor alike were placed in these improvised graves, most of them to remain there unidentified. There was no time to transport them to cemeteries,

and to leave them unburied meant added danger for the living.

Winifred Black, reaching San Francisco on the third day after the quake, describes the situation. Nothing more vivid than this expression of the general feeling came out of the ruin and chaos of the hour.

"Out in the desert last night," writes this famous author, "we, who were coming to San Francisco, met a train full of people who were going away from it. A man leaned out of the window of one of the cars; his face was as white as the dry bones of a death's-head; his eyes were great empty staring things and his mouth was twisted into a mirthless smile.

"'Are you going back into hell?' he yelled. 'Good luck to the Devil!'

"We on the train going west heard the hideous laughter of the man on the train going east and we looked at each other and wondered if he was insane, or if he knew what he meant. I know what the man meant now. I've been in San Francisco.

"It is hard work getting into the city, the water front is guarded inch for inch, almost, with soldiers; all kinds of soldiers, from sunburned veterans, called in from the lonely outposts on the plains, to fresh-faced high school boys in a brand new uniform. But every one of them is a real soldier who means what he says when he cries 'Halt.' No one is allowed through the lines except Red Cross and newspaper people and the officers are besieged with crying, hysterical, threatening crowds who want to get into the city to find some one who is missing.

"We went over in a launch and as we puffed along

the water front I saw the great wharves slipping, slipping into the crawling bay, blackened and twisted masses of wreckage. The shores were lined with people wading in the sand. Along the north side of the city there was a group of houses some four or five blocks square I should say. They were still standing, empty and forlorn.

"At the Presidio, the government reservation, we saw at least a hundred thousand people sitting on the slopes of the green California hills, waiting, waiting—for what? Not one of them could tell. When I asked them about the night of the dreadful terror they stared at me with empty eyes. 'Were you there?' they said. 'No? Then you cannot understand.' And every man looked over his shoulder and every woman whispered hoarsely, when she spoke, as if they all were afraid of some malignant creeping thing which might overhear them. Little children stared at me when I tried to talk with them and one woman looked me in the eyes and screeched with horrid laughter.

"'She wants to know what we are going to do,' she shrieked. 'She never saw what we saw. What are we going to do? As if we had anything to do with it. Why,' she sank her voice to a rasping whisper, 'why, you seem to think we're people, don't you? We aren't people; we are ants, little, creeping, hurrying, scurrying ants. You've stepped on ants lots of times, haven't you?—crunch.' She held up her bare foot with a dangling Japanese slipper and stamped it down into the soft ground in a fury.

"'See—that's what something did to us—crunch. And when we ran and it came after us again and we

hid and it found us—crunch, crunch,' and she screamed with laughter again. 'Oh, it was fun,' and the children stared at her with stolid, awe-stricken faces.

"'I can find my way,' I told the chauffeur of the automobile I had captured on that side of the bay. 'Take me out a ways in the burnt district and I will walk down.' The chauffeur looked at me strangely. 'Aren't you afraid?' he said. Afraid, I thought, why the man's crazy. Afraid in San Francisco in broad daylight and I could walk every step of the way blindfolded and then all these soldiers about. 'Why should I be afraid?' I said. The man looked over his shoulder with a sly smile. 'You can try it,' he said, and so I tried.

"I walked down Market Street from Laguna, about twenty-five blocks, I should think it is, and before I had gone one block I knew why the chauffeur asked me if I was not afraid. Down the middle of the great street we walked. The strange crowd of wandering white-faced men, women and children and I. Sometimes ankle, and sometimes almost knee deep in cinders and grimy dust. Hatless men, women in bare feet, children wrapped in scorched rags and everywhere soldiers—soldiers afoot and horseback; soldiers riding suddenly into us with a quick challenge of flying hoofs; soldiers stopping wagons and making the drivers take tired women and lift them into the wagon box; soldiers stopping wandering men and setting them to work clearing the road with shovels; soldiers picking up the women's bundles, and carrying that woman's baby. Boys, most of them, clear-eyed American boys. God bless them, and the uniform they

wore! Where this stricken city would be to-day without them, no one even dares to dream.

"But for all the soldiers and all the people, suddenly I felt that I was alone, alone in this awful Golconda; this haunted hell. If the great walls were only completely down, if the whole city were a mass of cinders, it would be infinitely less hard to see, but to walk down, down, down, through this street of the awful ghosts of dead buildings, great towering wraiths of empty walls that seemed somehow instinct with some strange malignant intelligence. Are houses where men have died in agony and lived in cruel pleasure alive, I wonder? Can they die and come back to earth to haunt us? I never thought so before, but now—the Palace Hotel gone, with just a crazy wall left, with a window frame or two laughing insanely in the sunlight; the Hearst Building, a shell of the front elevation left; the Call, the Chronicle, the Flood Building; all the splendid structures men had built in pride and in self-congratulation gone, all gone, hideous in their utter desolation, and every now and then the chuckling laughter of some smoldering flame that leaped and waved its cruel arms like some signal of sinister meaning.

"'This is where we found ourselves to-day,' said a young girl to me. A girl who must have been beautiful a week ago. A girl with a walking skirt slipped on over a cambric nightdress, and a gorgeous opera cloak dragging over that.

"'My sister and I. We went to the opera that night and then to supper. We hadn't been in bed very long when the shake came; the wall of the room caved in

and we ran out; then the fire came and we went two or three blocks further down and sat down on some steps and the fire came again and the people from that house took us with them to another house, but we had to leave there. Last night we slept in Jefferson Park on the grass and people got frightened and we ran away from there, and I don't know where my sister has gone. I have no money. I wonder if they will let me cross the ferry.'

"An old Chinaman, with a little white boy on his back, trotted along beside the beautiful girl; on the other side of her was a creature with matted hair and the rouge showing through the dirt on her tear-stained face. She carried a cage with a canary bird in it and at her heels trotted a slinking terrier.

"Down, down, the street of the dreadful ghosts we trudged, passed little groups of huddling creatures camping in the vacant spaces. Some were opening cans of tinned food; some were making tents of old sticks of timber and bits of ragged matting.

"'There will be a plague here within a week,' said a man in evening dress without a hat; 'two hundred thousand people camping out; no sewers, and water hard to get; fine pickings for the doctors. My luck always comes too late.'

"'There are four cases of typhoid in the Red Cross Hospital now,' spoke up a woman in a child's tam-o'shanter and a white wrapper. 'I have been there looking for my little boy and I heard them talking.'

"'There were five children born in the park where I slept last night,' said an old woman whose gray hair was whipping in the wind. Along the curb here and

there were wagons giving out food and waiting for the food was always a crowd of people a block long and half a street wide.

"The sun began to sink into the sea. The tin roofing on one or two old ruins began to rattle in the evening breeze and here and there a vagrant flame chuckled noisily. The great empty walls seemed to totter in the waning light.

"'Oh, my God,' screamed a woman, rising to her feet, in a passing wagon. 'See, it's after us again; drive faster; can't you drive faster?' she pointed at a few embers glowing in the dusk."

Prophetic finger! That poor, half-crazed woman saw nothing but destruction in that ember. But it was symbolical of the living spirit that is the real San Francisco. And now we turn from these heart-breaking pictures of woe and desolation to the fairer and saner side of the story—the re-establishment of order which is the divine law of the universe and which rises triumphant over every cataclysm, be it in the material universe or social government. For every discord ends at last in harmony.

CHAPTER V

BRINGING ORDER OUT OF CHAOS

Magnificent Work Done by General Funston and His Soldiers—Maddened Community Protected From Itself—Camps Established, Sanitation Enforced, Food and Shelter Provided—Difficult Problems Vigorously Solved—Devotion of Mayor Schmitz and His Aids—Police and Militia Earn Praise—Restoration of More Normal Conditions.

"Thank God for the soldiers," was the cry of the people of San Francisco during the days following the disaster, and it was echoed the country over. Never will the inhabitants of the Golden Gate City forget the debt of gratitude they owe the officers and privates of the United States Army. Nor are the boys of the California Militia, the men of the government navy yard and the heroic police force of San Francisco overlooked in the praise of noble work well done.

Major-General A. W. Greely, in command of the Department of the Pacific, was on his way east when the catastrophe occurred, but General Funston, commanding the Presidio Reservation, jumped to the front at once, joined forces with Mayor Schmitz and the other city officials and set about the mighty task of controlling the frantic city, rescuing its afflicted people and finally bringing order out of chaos.

Martial law was put in force at once, the War De-

partment at Washington arranged for the immediate sending of rations and tents from the nearest barracks, camps and hospitals were established speedily, plans for the proper distribution of food supplies were made and carried out. And in all this General Funston was the absolute dictator. He violated the constitution and laws of the country at every turn, yet the land rang with his praises. The War Department, headed by Secretary Taft, fully indorsed his every act. He was given full discretion to employ his forces as he saw fit. He turned loose the soldiers with broad orders and general instructions to act as their own good sense dictated, and the non-commissioned officers and privates proved their worth.

The soldiers, supplemented finally by marines and sailors from the fleet, made themselves masters of the situation, and with a ruthless but kindly disregard of law and precedent they restored order, carried the homeless to shelter, fed the hungry and portioned out precious water to the people who were clamoring for relief.

When grasping food dealers tried to extort outrageous prices for bread, the boys in khaki drew their revolvers and told them to sell their stock at the usual rates, or they would be shot down. Water wagons that were driven about the streets were guarded by soldiers, who compelled the distribution of the scanty supplies with even-handed justice. Where dead bodies were found, the soldiers forced citizens to assist in digging the graves.

The United States cruisers Chicago and Marblehead were stationed off Meiggs Wharf and prevented all

vessels, whether foreign or domestic, from leaving the harbor. The vessels were held there to be ready for any emergency that might arise.

The great streams of refugees were guided and driven to places of safety by the soldiers, and the injured, the sick and the aged were put into vehicles, whose owners were compelled, at the point of the bayonet if necessary, to aid in the humane work of rescue. Where it was imperative that debris be cleared out of streets to afford passage to the Ferry Building and other points of egress, passers-by were driven to the task by the army boys, who did not spare their own hands in the work.

Hospitals were guarded by a circle of pitying but inflexible soldiers, who let none pass except doctors, nurses and patients. Around these places gathered hundreds of sobbing wives, mothers, husbands and fathers, fearfully inquiring for the loved ones who might be within. They begged with tears for admittance, but the soldiers, sad but firm, turned them all back.

Perhaps the greatest work of the armed forces of the government was in the prevention of pestilence. Practically all of the house to house sewerage system of San Francisco was destroyed. An army of two or three hundred thousand men encamped in the suburbs of a great city would ordinarily die like flies unless it provided itself with proper facilities for the removal of garbage and the general sanitary cleansing of the immense camp. Even with trained soldiers under strict discipline it is an extremely difficult thing to enforce sanitary regulations.

The task was undertaken with the energy and common sense that marked all the army's work. A series of camps on military lines was organized as soon as possible. The refugees were compelled to live up to sanitary rules whether they liked it or not. Those who refused felt the prick of a bayonet. Furthermore, out of the tens of thousands of homeless people the soldiers forced as many as were needed to go to work for the common good, putting up shelters, erecting tents, devising store-houses, and creating the necessary sanitary appliances and safeguards to prevent the outbreak of pestilence. It was evident from the first that the utmost vigilance on the part of the army officers and the most constant attention by the medical corps would be required to prevent an epidemic of typhoid, dysentery and the ordinary train of serious diseases which are common to large military camps, and which are almost inevitable when dealing with an unorganized mob. Immense supplies of medical necessities were forwarded from army depots, and every medical officer and every man in the hospital corps within a wide range of San Francisco was ordered to report at once for duty under General Funston. Many tons of disinfectants were brought in, and every possible device to keep down the death rate in the camps was employed by the Medical Bureau, to make as good a record in this regard as had the Commissary and Quartermaster Departments in supplying food and shelter.

The camps for refugees were established in Golden Gate Park, the Presidio, Fort Mason, Jefferson Square Park and several other squares and in Oakland.

Quantities of lumber and other material were donated and the erection of vast barracks and smaller shelters was begun early. Of course the food supply was the earliest care of the authorities. Those who were directing the relief work outside also recognized this, and train loads of provisions were rushed to the city at the first opportunity. The stream of food supplies was constant from that time forward, and Monday a special correspondent of the Chicago Record-Herald thus described conditions in this regard:

"Food was never more plentiful in San Francisco than to-day and the only trouble is its proper distribution. The committee on feeding the hungry reports the most satisfactory progress in the huge task before it, and has already established fifty-two stations where all the hungry may secure their daily rations.

"Besides the government and the general food committees, which are doing the most heroic work, a large number of independent organizations also are attacking the food problem. It is hoped that the distribution of supplies may be systematized under one head in the course of a day or so, so that there may be no conflict or duplication of effort on such an all-important issue.

"The committee of the whole has designated a subcommittee of seven, which is directing the relief work so far as food is concerned. Dr. Vorsanger is chairman, J. E. Drum, vice-chairman, and Oscar F. Cooper, secretary. The headquarters of the bureau is in the City Hall at Bush and Fillmore Streets, and it is there that the executive functions are in operation.

"From all points news of approaching relief trains

THE BURNING OF THE CITY AS VIEWED FROM NOB HILL.

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RUINS OF GRACE CHURCH.

All that was left of a fine house of w[illegible] after the flames had passed.

is coming in and already sufficient provisions have accumulated on the cars at the Oakland pier to supply the needs of the city for more than a week. Plain food of every description is plentiful and luxuries are beginning to arrive. A coffee famine was threatened last night, but to-day fresh consignments of this important stimulant are being distributed from almost every food depot.

"There is an abundance of meats for stewing, though all the finer cuts are being used at the hospitals. Immense cattle trains are rolling northward from the prairies of the Southwest and chickens and eggs are coming from the nearby interior towns. The most pressing need is for vegetables, preferably potatoes, carrots, onions and the like. Fresh and perishable products cannot be properly cared for.

"The lines of applicants at the various food stations are blocks long. Every one receives rations for a single person as many times a day as he asks, and an attempt at distribution among the helpless families is being made. The spirit of the people is wonderfully buoyant in the face of distress and neither disorder nor complaints are evident along the bread line. Volunteer distributors are issuing the provisions under military protection.

"The committee has secured two main warehouses and all provisions as they reach the piers are being carted there. These are the J. A. Folger Building at Spear and Howard Streets, which stands intact, though in the burned district, and the Moulder School House at Page and Gough Streets, which will supply that part of the residence district spared by the conflagra-

tion. The headquarters for government supplies are at the Presidio, the Folsom Street Dock and Fort Mason. Major Krauthoff, who is in charge of the federal commissary, has ordered his subordinates to assist the citizens' committee to the limit of their power."

Sunday the Pacific Mail steamer, with a cargo that included a large quantity of food-stuff, arrived from the Orient. She was docked at Oakland and the food she brought was distributed in the camp there.

Mayor Mott of Oakland also took steps to prevent extortion, issuing the following proclamation:

"To Whom It May Concern: The City Government requests that lodgings and food supplies be offered for sale at usual rates, notwithstanding the present calamity.

"An especial appeal is made to hotels, lodging-houses, grocers, butchers, restaurant-keepers and sellers of breadstuffs and supplies.

"In the event of exorbitant prices being demanded for lodgings or food supplies, the military authorities will be given power, under proper direction, to take into possession said lodging-houses or supplies, compensation for the same to be determined later by the courts. This is important."

The water problem was more difficult of solution. The city was supplied by the Spring Valley Water Company, and experts reported Saturday that there was enough water in the company's reservoirs to supply the city at the regular rate of 35,000,000 gallons a day for 600 days. But the difficulty lay in getting this supply into the city. However, some of the pipes were repaired hastily, so that 6,000,000 gallons daily were

brought in, and then the work of restoring the mains was taken up systematically and carried on with expedition. For this task Oakland furnished an engineering corps.

Throughout all these trying days there was the utmost harmony and accord between the military and civil authorities. Mayor Eugene Schmitz was glad to yield supreme command to General Funston, but he did not in the least abate his own efforts. Day and night he labored for his city and its people, and he was ably seconded by all the other civic officers.

At an early hour Wednesday the mayor named the following citizens as a general committee of safety: James D. Phelan, Herbert Law, Thomas Maggee, Charles Fee, W. P. Herrin, Thornwell Mullally, Garret W. McEnerney, W. H. Leahy, J. Downey Harvey, Jeremiah Dinan, John J. Mahoney, Henry T. Scott, I. W. Hellman, George A. Knight, Ig. Steinhart, S. G. Murphy, Homer King, Frank Anderson, W. J. Bartnett, John Martin, Allan Pollock, Mark Gerstle, H. V. Ramsdell, W. G. Harrison, R. A. Crothers, Paul Cowles, M. H. De Young, Claus Spreckels, Rudolph Spreckels, C. W. Fay, John McNaught, Dent Robert, Thomas Garrett, Frank Shea, James Reed, Robert Pisis, T. P. Woodward, Howard Holmes, George Dillman, J. B. Rogers, David Rich, H. T. Cresswell, J. A. Howell, Frank Maestretti, Clem Tobin, George Toumey, E. B. Pond, George A. Newhall, and William Watson.

Other committees were appointed as the need arose, and the members of all of them, utterly disregarding

their personal losses, labored nobly and untiringly for the common good.

Several days after the earthquake a vigilance committee was formed, the first of its kind in San Francisco for half a century. The leader was Dr. Donald McCulloch Gedge, who served in the French army and in the United States navy and fought in the China war. His chief of staff was ex-Auditor Harry Baehr.

The organized work of restoring order and caring for the refugees had many branches, undertaken by as many interests. The Red Cross and White Cross First Aid Associations, the Associated Charities of the city and other societies all did their share. A committee representing the Japanese Relief Society devoted its efforts largely to caring for the destitute Japanese in the city and to collecting funds from the Japanese in the other cities along the coast.

The care of the Chinese colony received special attention. President Roosevelt asked that the Chinese be given relief, as well as other nationalities, and a separate camp was established for the Orientals, where their peculiar needs were given attention, under the direction of their leading representatives.

The San Francisco Real Estate Board took measures for the protection of tenants who had suffered through the fire, and steps were taken to secure a remission of any penalty imposed upon taxpayers for non-payment of the second installment of taxes for the fiscal year ending June 30, 1906.

In order to facilitate financial matters and give the banks time to get the gold and silver out of their vaults, Governor Pardee declared Thursday, Friday

and Saturday public holidays. Legal business was resumed Wednesday, April 24, the superior judges opening their twelve departments in a Jewish synagogue at California and Webster Streets.

The postoffice resumed business in a way two days after the earthquake, though its building was practically ruined. For some time letters from San Francisco were sent through the mails without postage, and registered mail was held in the Oakland office.

By Sunday the stricken city even had a measure of street car transportation. Electric cars were running on Fillmore Street, the service being free. Other lines were soon reopened with horse cars. There was plenty of coal in the city, also, in docks and on board vessels in the harbor.

Monday Major-General Greely arrived and assumed general command. This change, however, did not reflect in the slightest on General Funston nor materially lessen his duties. His prompt and vigorous measures for the restoration of order, and the protection he gave the public in its most trying hours, had made him the idol of the community and he received the warm recognition and approval of the War Department. The same day, so much progress having been made, the Citizens' Relief Committee requested Governor Pardee to withdraw the State Militia from the city. No dissatisfaction with the state troops was conveyed in the request; on the contrary, due recognition was accorded the splendid service the militia had performed in guarding the interests of the public. But the committee was confident that while the fed-

eral troops remained on duty there was no necessity for additional forces other than the city police.

Many hundreds of persons abandoned San Francisco for good as soon as they could find means to get away, and the authorities encouraged this movement, at the same time trying to check the stream of mere sight-seers that began to flow from all points. Plans were laid to give immediate occupation to large numbers of men at other places. C. B. Stewart, labor commissioner of the Western Pacific Railroad Company, offered steady employment to 3,000 men; E. B. and A. L. Stone had work for 1,500, and dozens of similar offers were received and accepted. However, so prompt was the movement toward clearing up the ruins and rebuilding the city that it was evident San Francisco would soon need all the labor available.

One week from the day of the earthquake the handling of supplies and relief funds had been reduced to a system. President Roosevelt paved the way for this harmonious arrangement by issuing the following proclamation:

"TO THE PUBLIC:—When the news of the dreadful disaster at San Francisco first came it was necessary to take immediate steps to provide in some way for the receipt and distribution of the sums of money which at once poured in for the relief of the people of San Francisco. At the moment no one could foretell how soon it would be possible for the people of San Francisco themselves to organize, and to tide over the interval the American National Red Cross Association was designated to receive and disburse the funds.

"But the people of San Francisco, with an energy and self-reliant courage, a cool resourcefulness and a capacity for organized and orderly endeavor which are beyond all praise, have already met the need, through committees appointed by the mayor of the city, ex-Mayor James D. Phelan being chairman of the finance committee. The work of these committees has been astonishing in its range, promptness and efficiency. As I am informed by Major General Greely, although all local transportation was destroyed, as well as practically every supply store in the city, these local committees, with the help of the army, have succeeded in caring for 300,000 homeless people in the last five days.

"Thanks to their efforts, no individual is now suffering severely for food, water or temporary shelter. This work has been done with the minimum of waste and under conditions which would have appalled men less trained in business methods, endowed with less ability, or inspired with any but the highest motives of humanity and helpfulness. The need of employing the Red Cross, save as an auxiliary, has passed, and I urge that hereafter all contributions from any source be sent direct to James D. Phelan, chairman finance committee, San Francisco. Mr. Devine of the Red Cross will disburse any contributions sent to him through ex-Mayor Phelan and will work in accord with him in all ways.

"THEODORE ROOSEVELT."

At a conference attended by Secretary of Commerce Metcalf, Major General Greely, General Funston, Dr. Edward Devine, the President's Red Cross agent, Mayor Schmitz and representatives of all the local com-

mittees, it was agreed that all relief funds given by congress and the people should be handled by James D. Phelan and the local finance committee.

The policing of the city and the care of camps and hospitals was given over entirely to the army.

It was agreed, further, that the army should have sole charge of the distribution of food, and at noon on April 26th the fifty-eight relief stations were taken over by the quartermaster's department. After that no free distribution of food was made through any other agency.

The self-constituted vigilance committees and protective committees were ordered to disband at once, and Mayor Schmitz announced that all "vigilantes" found patrolling the streets with arms would be disarmed and, if they resisted, treated as looters and shot without ceremony. There had been much complaint of unwarranted shooting and arbitrary conduct on the part of these "protective committees." One of them was held responsible for the death of Major Tilden, who was killed while doing relief work.

Causes of friction thus being removed and tangles straightened out, the mighty task of bringing order out of chaos went forward smoothly and rapidly.

CHAPTER VI

THE HEART OF THE WORLD IS STIRRED

Millions of Dollars for Relief of the Stricken City—Trains of Provisions Rushed from Sacramento and Los Angeles While the Fire Rages—The National Government Makes Available a Million Dollars for the Homeless—New York Subscribes $500,000 the First Day—Chicago, Remembering Its Own Holocaust, Quickened to Heroic Action—Every City of the Country Swells the Relief Fund—Even the Poor Give Liberally from Their Slender Store—The Nations of the Earth Send Messages of Sympathy.

Never in the history of the world was there such prompt and universal response to the calls for mercy as those which followed the first announcement of the earthquake at San Francisco. Before the results of the first shocks were known, and when the full extent of the loss was not dreamed of, individuals and cities were at work collecting money and provisions to be forwarded to the sufferers. Railroads and express companies offered at once to transport free everything that could in any way relieve the terrible situation. Relief committees comprising the wealthiest and most influential citizens of the commonwealth were formed with surprising alacrity. Governors issued proclamations calling upon their states to inaugurate the work of relief and legislatures rushed through bills to ap-

propriate sums of money to be immediately available for use in the doomed city.

Mayor Eugene E. Schmitz of San Francisco was deluged with telegrams asking for instructions regarding the kind of contributions most necessary at the moment. The governor of California proclaimed a legal holiday and called upon all the people of the state to lend their energies to alleviate as far as possible the helpless victims of force and fire.

The public response to the appeals for aid that came from San Francisco was remarkable. The people of San Francisco still were fleeing from the flames that consumed their homes and destroyed all their possessions, when the first relief train, the advance guard of countless others now en route and still to come, reached the city and temporarily placed the sufferers beyond the reach of want.

The disaster inspired the American people to reach out a helping hand to the homeless and suffering victims of the calamity. Within twenty-four hours after the first news of the catastrophe was received money had been subscribed and steps taken for the collection of funds in every city, town and hamlet in the country.

The celerity with which Congress appropriated $1,000,000 in aid of the sufferers and which, three days later, was followed by a second appropriation of $1,500,000, commanded the admiration of the civilized world.

In this promptness the country was not lacking. The day following the disaster a train laden with supplies of every description, arranged for by telegraph by William Randolph Hearst, arrived in Oakland from

Sacramento, the capital city of California. This was followed in quick succession by other Hearst relief trains, many more being sent to the devastated city.

Meanwhile, committees to raise funds were organized in New York, Chicago, Philadelphia, Boston, Cincinnati, New Orleans, Pittsburg, Seattle, Portland and every city of prominence in the United States. New York and Chicago set themselves to the task of raising $1,000,000 each, and these great sums were realized in less than ten days in both cities.

In the smaller cities and towns the public-spirited citizens were equally busy, and everywhere the cry "Give! Give!" arose. The response surpassed every expectation, and the grand results were a fitting testimonial to the worth of a people who are willing to undergo any sacrifice to aid their countrymen in distress.

The generous spirit manifested at every turn exhibited itself in the numerous novel methods adopted to insure the success of the national relief movement. Benefit performances of every description sprang up at once throughout the country, the proceeds of which were forwarded to San Francisco. The theatrical people in the larger cities did noble work in advancing the great cause. No labor was deemed too onerous by the Thespians.

The press throughout the country became prime factors in the relief movement and nearly every newspaper of note organized its own corps of workers and opened subscription lists. Every legitimate plan which had for its end the swelling of the relief fund was given due attention and all the newspapers by the

weight of their influence accomplished results which, in the light of developments, astound the world.

In New York men of wealth and prominence did not disdain to sell newspapers at street corners for prices ranging from 10 cents to $100. Prominent society women, patrolling the city in their automobiles, sold tickets to entertainments at any price that was offered, the proceeds being turned over to the Red Cross and other Relief Funds.

In Chicago the same enthusiastic spirit was manifested. The best known stars of the theatrical world, including Sarah Bernhardt, Mrs. Leslie Carter, Julia Marlowe, E. H. Sothern, Robert Loraine, and others, vied with lesser known actors in the work of swelling the relief fund. Even the school children robbed their little banks of their savings and without a sigh of regret added their mites to the larger sums raised to provide food and raiment for the sufferers across the western slope.

While the American people were responding to the call of duty, the people abroad were not inactive. In London, Paris, Berlin, Vienna and other continental cities, where Americans annually spend huge sums, relief funds were started and were generously added to from day to day. The ready response made by the people of this country to aid the victims of the Vesuvius calamity was not forgotten, and from all the capitals of Europe came the cheering news that substantial funds would be forwarded to the sufferers in California.

It was estimated that sums far in excess of $10,000,000 would be forwarded to San Francisco within two

months following the earthquake, and that the work of raising funds would continue until every homeless man, woman and child in California be provided with sustenance and shelter.

The thought of how long a period might elapse before conditions surrounding the homeless people would become normal and they be once more in a position to help themselves was not even considered by the generous American people who were engaged in the relief work. Their only thought was to furnish help and to keep the work going until the sufferers themselves should say enough.

William Randolph Hearst, himself the victim of large financial losses, turned the whole force of his chain of papers over to the work of securing and transporting immediate provisions and money. He sent the first two train loads of provisions into the city, one from Sacramento, and one from Los Angeles. M. Guggenheim's Sons of New York on the first day of the quake telegraphed General Funston, who had taken military possession of the city, $50,000 to be used at once at the general's discretion.

Foreign countries were no less quick to offer sympathy and express a willingness to join the United States with material assistance if it should be needed. In London there were public meetings of churches, Good Templar and many other societies, at which were adopted expressions of sorrow at the calamity and deep sympathy with the bereaved and injured. The American embassy was besieged for news of the catastrophe and the offices of the Associated Press invaded

by those having relatives or friends in the region of the great earthquake.

The American Society summoned its members by telegraph to attend a meeting to discuss steps to assist the sufferers. Ambassador Reid presided. Mr. Reid was in receipt of numerous telegrams, including one from the Lord Mayor of London and another from the premier, Sir Henry Campbell-Bannerman, which he immediately forwarded to the State Department at Washington. One hundred thousand dollars was subscribed for the sufferers at the meeting.

John E. Redmond telegraphed to Mayor Schmitz of San Francisco on behalf of the Irish party and nation an expression of sympathy and mourning.

Emperor William sent a cablegram to President Roosevelt expressing the sympathy of Germany with the American public over the terrible catastrophe which had occurred in San Francisco and vicinity.

The details of the San Francisco disaster were cabled to King Edward, who immediately ordered a cable message sent to President Roosevelt expressing his sorrow at the dire calamity.

The catastrophe in San Francisco aroused an emotion in France which has not been equaled since the Martinique volcanic eruption. The newspapers were filled with all the news obtainable of the disaster, adding comments of extreme sympathy for America and her affliction.

When the news of the San Francisco earthquake reached the Vatican the Pope immediately cabled his blessing and expressed his sympathy with the people of the stricken city.

Further expressions of condolence and sympathy were sent to President Roosevelt from all parts of the world.

The president of Guatemala said: "I am deeply grieved by the catastrophe at San Francisco. The president of Guatemala sends to the people of the United States through your eminence his expression of the most sincere grief, with the confidence that in such a lamentable misfortune the indomitable spirit of your people will newly manifest itself—that spirit which, if great in prosperity, is equally great in time of trial."

President of Mexico: "Will your excellency be so kind as to accept the expression of my profound and deep sympathy with the American people on account of the disaster at San Francisco, which has so affected the American people?"

President of Brazil: "I do myself the honor of sending to you the expression of the profound grief with which the government and people of the United States of Brazil have read the news of the great misfortune which has occurred at San Francisco."

Emperor of Japan: "With assurances of the deepest and heartiest sympathy for the sufferers by the terrible earthquake."

King Leopold of Belgium: "I must express to you the deep sympathy which I feel in the mourning which the terrible disaster at San Francisco is causing the whole American people."

President of Cuba: "In the name of the government and people of Cuba, I assure you of the deep grief and sympathy with which they have heard of

the great misfortune which has overtaken San Francisco."

Kirkpatrick, acting premier of New Zealand: "South Australia deplores the appalling disaster which has befallen the State of California and extends heartfelt sympathy to sufferers."

Viceroy of India: "My deepest sympathy with you and people of United States in terrible catastrophe at San Francisco."

Governor Talbot of Victoria, Australia: "On behalf of the people of Victoria, I beg to offer our heartfelt sympathy with the United States on the terrible calamity at San Francisco."

President of Switzerland: "The Federal Council is profoundly affected by the terrible catastrophe which has visited San Francisco and other California cities, and I beg you to receive the sincere expressions of its regret and the sympathy of the Swiss people as a whole, who join in the mourning of a sister republic."

Emperor Franz Joseph of Austria: "I beg to assure you, Mr. President, of my most sincere sympathy with your land in its sorrow because of the terrible earthquake at San Francisco, and I beg to offer you personally, Mr. President, my heartfelt condolences."

Prince Henry of Prussia: "Remembering American hospitality, which is still so fresh in my memory, I hereby wish to express my deepest sympathy on behalf of the terrible catastrophe which has befallen the thriving city of San Francisco and which has destroyed so many valuable lives therein. Still hope that news is greatly exaggerated."

Premier Bent of South Wales: "New South Wales

and Victoria sympathize with California suffering disaster."

Count Witte: "The Russian members of the Portsmouth Conference, profoundly moved by the sad tidings of the calamity that has befallen the American people, whose hospitality they recently enjoyed, beg your excellency to accept and to transmit to citizens of United States the expression of their profound and heartfelt sympathy."

Among the men whose largess was most princely was James D. Phelan, ex-Mayor of San Francisco, who donated $1,000,000, the largest individual donation ever made for charity. He was also one of the heaviest losers in the fall of the city. John D. Rockefeller gave $100,000, C. J. Burbage, Boston, $100,000; William Waldorf Astor, $100,000; Andrew Carnegie, $100,000. The total contributions on Sunday, April 22, four days after the quake, amounted to more than $10,000,000. History is without a parallel in the prompt and generous responses to the appeals for aid in this instance. The generosity of the American people has never been excelled, but it would seem to have grown with the same surprising vigor and strength as that manifested in the nation itself. The property loss to San Francisco was variously estimated at from $390,000,000 to $420,000,000. It is beyond belief that such a vast sum could be restored to the city through contributions. Yet, had the same spirit that prompted the world to pour out its treasure during the first few days following the disaster continued to govern for a few weeks the whole property loss of the Golden Gate City might have been returned.

It would be impossible to enumerate in one volume of natural size the number and extent of the relief associations that were formed almost on the instant and worked from the start with wonderful unanimity and order. Hardly a hamlet in the confines of the Union but had its relief committee. Not a newspaper of note but what opened its columns to subscriptions, and proffered continued assistance in locating missing friends and relatives in the ruined city.

The big railroads were no longer "soulless corporations." Instead, they were not only winged messengers of mercy, but they were messengers of colossal strength and bore in their giant arms thousands of tons of food and clothing for the starving and naked. They did this without money and without price. From New York to San Francisco; from the north and south everywhere could be seen speeding the long trains bearing the grateful banner, "Relief Train for the San Francisco Sufferers." All freight and passenger traffic had to give the right of way to these relief trains, that ran at top speed and halted only for necessary coal and water to keep the engines going.

The express companies were no less liberal and carried everything offered that could in any way alleviate the sufferings, or strengthen the hopes of the destitute, huddled in the parks of San Francisco.

The Red Cross Society sent hundreds of nurses and many physicians, and the White Cross Society hurried from Chicago in a special train twenty-five doctors and seventy-five nurses. The government ordered its military stores shipped from all points to the De-

partment of the Pacific, and they were there issued to the people as they would have been to an army of recruits.

Both the Salvation Army and the Volunteers did a noble work, not only in helping to take care of the people on the ground, but on every street corner of every city stood the big-bonneted lassies beside boxes for receiving contributions for the big relief fund.

Actors, artists, authors, architects, bankers, mechanics and laborers of all kinds and conditions of society elected committees and instituted proceedings looking toward the collection of money and supplies to be forwarded to their brothers and sisters in the Golden Gate city.

The whole world seemed to have been suddenly transformed into a mission of charity wherein every individual was actively engaged in some endeavor for the comfort and assistance of the people made so suddenly homeless and destitute.

To stand still for one minute and contemplate the earth as a great ampitheatre with all its inhabitants flinging of their wealth or their poverty, as the case might be, flinging freely to that one spot where a beautiful city lay prostrate and numb from terror and despair was to understand that beautiful prayer of Oliver Wendell Holmes which here had a practical answer:

"God of the universe, shield us and guide us,
Trusting Thee always through shadow and sun;
Thou hast united us, who shall divide us;
Keep us, O keep us, the Many in One."

And though the vision of all that goodness may fade again into the sordid struggle that must still govern mankind, the memory of it will remain to soften and subdue the heart of the world.

CHAPTER VII

PEN PICTURES OF DESOLATION

Scenes Amid the Ruins—Remnant of City Like Crescent Moon Set About Black Disk of Shadows—Doleful Streams of Refugees—Horrors Breed Insanity—Drunken Orgies Held by Denizens of "The Barbary Coast"—Soldiers Sternly Enforce Martial Law—Disobedience Brings Instant Death.

Vivid portrayals of the scenes and incidents in the ruined city and among the refugees encamped in the parks and outskirts were contained in the dispatches of special newspaper correspondents sent during the days immediately following the disaster. These men were all trained observers and dramatic and pathetic happenings did not escape their eyes. Here is what a correspondent of the Chicago Tribune saw on Friday, April 20:

"All that is left of the proud Argonaut city is like a crescent moon set about a black disk of shadow. A Saharan desolation of blackened, ash covered, twisted debris is all that remains of three-fifths of the city that three days ago stood like a sentinel in glittering, jeweled armor, guarding the Golden Gate to the Pacific.

"Men who yesterday numbered their fortunes in the tens of thousands to-day camp on the ruins of their homes, eating as primitive men ate—gnawing; thinking as primitive men thought. Ashes and the dull

pain of despair are their portions. They seem not to have the volition to help themselves; childlike as the men of the stone age, they wait quiescent what the next hour may bring them.

"Last night the people of San Francisco slept out of doors. Fear they had none, because they had known the shape of fear for thirty-six hours and to them it had no more terrors. Men overworked to the breaking point and women unnerved by hysteria dropped down on the cooling ashes and slept where they lay, for had they not seen the tall steel skyscrapers burn like a torch? Had they not beheld the cataracts of flames fleeting unhindered up the broad avenues, and over the solid blocks of the city?

"Fire had become a commonplace. Fear of fire had been blunted by their terrible suffering, and although the soldiers roused the sleepers and warned them against possible approaching flames, they would only yawn, wrap their blanket about them and stolidly move on to find some other place where they might drop and again slumber like men dead.

"Past these huddled groups of sleepers an unending stream of refugees was seen wending their way to the ferry, dragging trunks over the uneven pavement by ropes tethered to wheelbarrows laden with the household lares and penates. These bowed figures crept about the water and ruins and looked like the ghosts about the ruins of Troy, and unheeding save where instinct prompted them to make a detour about some still burning heap of ruins.

"At the ferry the sleepers lay in windrows, each man resting his head upon some precious treasure that

he had brought from his home. No one was able to fear thieves or to escape pillage, because of absolute physical inertia forced upon him.

"Mad, wholly stark mad, are some of the unfortunates who have still not fled from the ruins. In many instances the soldiers have been forced to tear men and women away from the bodies of their dead. Yesterday afternoon two women were stopped within a distance of a few blocks and forced to give up the dead bodies of their babies, which they were nursing to their bosoms.

"At 2 o'clock this morning a newsgatherer passing through Portsmouth Square noticed a mother cowering under a bush. She was singing in a quavering voice a lullaby to her baby. The reporter parted the bushes and looked in. Then he saw that what she held in her arms was only a mangled and reddened bit of flesh. The baby had been crushed when the shock of earthquake came and its mother did not know that its life had left it thirty hours before.

"Now that law and order are strained a crew of hell rats have crept out of their holes and in the flamelight plunder and revel in bacchanalian orgies like the infamous intimates of Javert in 'Les Miserables.' These denizens of the sewer traps and purlieus of 'The Barbary Coast' now exult in unbounded joy of doing evil.

"Sitting crouched among the ruins or sprawling on the still warm pavement they may be seen brutally drunk. A demijohn of wine placed on a convenient corner of some ruin is a shrine at which they worship. They toast chunks of sausage over the dying coals of the cooling ruin even as they drink, and their songs

of revelry are echoed from wall to wall down in the burnt Mission District.

"Some of the bedizened women of the half world have erected tents and champagne may be had for the asking, although water has its price. It was yesterday that one of these women, dressed in pink silk with high heeled satin slippers on her feet, walked down the length of what had been Natoma street with a bucket of water and a dipper, and she gave the precious fluid freely to those stricken ones huddled there by their household goods and who had not tasted water in twenty-four hours.

"'Let them drink and be happy,' said she, 'water tastes better than beer to them now.'

"The famine problem is rapidly become a serious one. At the present time a loaf of bread costs a dollar, and a scrap of meat which well might be called cat's meat, brings fifty cents. The refugees subsist on dried breakfast food not moistened with milk, and upon canned vegetables and fruits.

"One genius secured a frying pan and succeeded in toasting some slabs of potatoes in tallow, mixed with a little precious butter. These he was selling yesterday at the price of ten cents per slab, and he had left not a half sack of potatoes with the possibility of having recourse to candles for frying purposes.

"Three stations for the homeless have been established by the general relief committee and to these stations there were being carried yesterday morning confiscated stores from grocery stores.

"Oakland, across the bay, has done yeoman work in rushing supplies to San Francisco. The steamer J.

D. Peters, loaded with flour and with meats from Sacramento, dropped down the river yesterday and discharged the cargo at the Folsom Street wharf, where already crowds of refugees had gathered and were receiving food under the direction of officers of the relief committee.

"Down near the railroad tracks at what used to be Townsend Street, food was mined from the ruins yesterday as a result of a fortuitous discovery made by Ben Campbell, a negro. Campbell, while in search of possible treasure, located the ruins of a grocery warehouse, which turned out to be a veritable oven of plenty. People gathered to this place and picked up oysters, canned asparagus, beans, and fruit all done to a turn and ready for serving. Now they are using pick handles as divining rods and are searching diligently for more of these mines of plenty.

"The people of San Francisco are taking account of what is left in the wilderness of ruins. The steel remains of the Call Building and Hotel St. Francis, the Flood Building, and every skyscraper still stand with the shell of stone almost intact.

"The interior of the magnificent new postoffice building is cleaned out by the flames and is believed to be past repair. Down in Jackson Street, by some freak of the flames, the old appraisers' building, erected twenty-five years ago, still stands a lonesome monument in all the dreary mass of fallen walls.

"The Ferry Building, at the foot of Market Street, was badly wrenched by the earthquake, but not touched by the flames, and all the ferry slips, as well as their wharves, extending from Vallejo Street to Folsom,

have been spared by the fire. The Market Street Bank Building withstood the shock of both quakes and flames and is the only structure in the whole length of that thoroughfare from the City Hall to the ferry which presents itself.

"The federal mint has been damaged by the earthquake, but is practically intact and will need little repairing.

"San Francisco is still under martial law. General Fred Funston is commanding, and this regime has proven effective in subduing anarchy and preventing the depredations of looters. A detail of troops helps the police to guard the streets and remove people to places of safety.

"The martial law which General Funston dispenses is the sternest. They have no records existing of the number of executions which have been meted out to offenders. It is known that more than one sneaking vandal has suffered both for disobedience of the injunction given against entering deserted houses.

"At the present Gen. Funston has the situation thoroughly in hand and there is no immediate possibility of the reign of disorder.

"There is a sharp, business-like precision about the American soldier that has stood San Francisco in good stead in these last three days. The San Francisco water rat thug and 'Barbary coast' pirate may flout a policeman, but he has discovered since Wednesday morning that he cannot disobey a man who wears Uncle Sam's uniform without imminent risk of being counted in that abstract mortuary list usually designated as 'unknown dead.'

"For instance: Yesterday, when Nob Hill was the crest of a huge wave of flame, soldiers were directing the work of saving the priceless art treasures from the Mark Hopkins Institute.

"Lieut. C. C. McMillan of the revenue cutter Bear impressed volunteers at the point of a pistol to assist in saving the priceless art treasures which the building housed.

"'Here, you,' barked Lieut. McMillan to the great crowd of dazed men, 'get in there and carry out those paintings.'

"'What business have you got to order us about?' said a burly citizen with the jowl of a Bill Sykes.

"The lieutenant gave a significant hitch to his arm and the burly man saw a revolver was hanging from the forefinger of the lieutenant's right hand.

"'Look here,' said the lieutenant. 'You see this gun? Well, I think it is aimed at your right eye. Now, come here. I want to have a little talk with you.'

"The tough stared for a moment and then the shade of fear crept over his face, and with an 'All right, boss,' he started in upon the labor of recovering the art treasures from the institute.

"'This is martial law,' said the determined lieutenant. 'I don't like it, you may not like it, but it goes. I think that is understood.'"

C. E. Van Loan of the Chicago American went through the great camp of refugees in Golden Gate Park Saturday and told of the scenes of pathos, humor and bravery there.

"The vast encampment was astir early this morn-

ing," he wrote. "All the open spaces have been utilized; lawns are covered with rude shelter tents. Women wrapped in costly opera cloaks shivered over small fires, while the men went out to forage for firewood or to join the broad long lines in Eddy Street.

"The most amazing thing—the thing which strikes the newcomer—is the spirit of this homeless people. They make a jest of misfortune—they turn a calamity into a wayside comedy.

"One man managed to save a small upright piano. How he ever got it into the park panhandle is a mystery. On a crackerbox, he gives impromptu ragtime concerts. His favorite selection is 'Home Ain't Nothing Like This,' and thousands of homeless ones within the sound of the piano seem to appreciate the grim joke.

"At the Stanyan Street entrance a woman has erected a tent—four sticks with a damask table cloth spread over them. Her furnishings consist of several articles of wearing apparel tied in a sheet and a canary in a cage. Over the entrance is the sign: 'Your fortune told—cheap.'

"One man has a tepee of evergreen boughs and he sits inside, the proud possessor of the only silk hat in the Panhandle and a banjo with broken strings. Three days ago that man had a wife and a comfortable home. Now he toasts bacon over a fire and eats it with his fingers. If he can locate his wife he will be perfectly happy.

"One man wanted to know whether the fire had reached his home. He was informed that there was

not a house standing in that section of the city. He shrugged his shoulders and whistled.

"'There's lot of others in the same boat,' he said, as he turned away.

"And those men who have lost everything are planning to begin all over again.

"'Going to build?' repeated one man who lost family and home inside of two hours. 'Of course I am. They tell me that the money in the banks is all right and I have some insurance. Fifteen years ago I began with these,' showing his hands, 'and I guess I'm game to do it over again. Build again? Well I wonder.'

"These little things show the spirit with which the people of San Francisco have faced the worst that the fates could send. They are down but not out. The spirit of '49 lives and moves among those tattered refugees and no loss can crush it out.

"The park is under military rule. Armed guards are everywhere, and while there have been hundreds of rumors of shootings because of lawless acts, actual cases are very rare. At 7:30 all fires must be extinguished in the park. One negro lit a cigarette and refused to put it out when ordered to do so.

"'Put it out or I'll shoot it out,' said the soldier, leveling his revolver. And the negro put it out.

"The badge of the Red Cross admits everywhere. Automobiles fly it, women wear it on their arms or their hats and the guard lines are always opened to them. It is a better pass than the card bearing the signature of Governor Pardee, for those men and women of the Red Cross are doing a noble work and fighting down thousands of difficulties.

"The officers are still seizing vehicles and pressing them into service. Down on the water front a naval lieutenant seized two carriages. They were ordered to transfer a corps of nurses to a hospital in the unburned district.

"'But this is my carriage,' said one of the drivers. 'Show me your authority for holding me up like this.'

"'The only authority I can show you is this,' said the officer showing his pistol; 'isn't that enough?'

"San Francisco is no place for the curiosity seeker. The work of clearing the car tracks on Market Street began at dawn this morning. Every idle man was pressed into service. Most of them went without argument.

"Opposite the ruins of the City Hall a husky sergeant had a squad of fifty citizens pitching bricks out of the middle of the street.

"'Ain't they doing fine?' asked he with a broad grin. 'I've got the Chief of Police from Milpitas, or somewhere, in there throwing bricks. He told me who he was, but I "persuaded" him. He's doing well. We'll have this street open clear to the ferry before night.'

"But there are thousands of willing workers who do not need any 'persuasion.' They are anxious to do anything to improve the situation. They toil like beavers and never stop until that particular bit of work is finished.

"The people still in the unburned district are beginning to realize the danger of building fires in the houses. Every house has its little brick oven out in the street. There the meals are cooked. Those who have food

share it with their neighbors, and as yet there has been no actual hunger except in isolated cases."

Sitting in his office in Oakland, a telegraph operator who was looking across the harbor at San Francisco gave to an operator at the other end of the wire in New York a vivid description of the appearance of the burning city.

"The roar of dynamite from the other side of the harbor is almost deafening at times," ticked the Oakland operator. "They are attempting to blast out pathways in the city blocks wherever the fire threatens, in order to check its spread. San Francisco is at times enveloped in smoke, and when it lifts we can see the flames of burning buildings and occasionally the timbers flying from a dynamite explosion. Almost all activity except that of dynamiting appears to have ceased.

"The shocks here are continuous, some of them being quite severe. They have gotten on the people's nerves so that whenever the earth trembles almost everyone who is under roof rushes out of doors. Many of the buildings in San Francisco were so badly damaged by this morning's shock that they are a peril to whoever enters them during the continuance of the earthquake shocks.

"Some time ago a message was received from the Western Union headquarters in San Francisco that they would have to vacate the building because it was to be blown up with dynamite. Immediately after this communication with the office ceased, and an operator who volunteered to go from another office to see what the trouble was failed to return to his wire. Com-

munication was also interrupted with the ferry-house in which the Western Union established wires, and from Oakland it appeared that the ferry-house had been damaged by a dynamite explosion."

All the letters and dispatches out of the city were filled with a curious mixture of comedy and tragedy, showing the intellect of the survivors to be tried to the verge of collapse. It was days before they resumed a normal attitude toward anything.

CHINATOWN, SAN FRANCISCO.

Many of the buildings were wood, with oriental fixings, which made them burn like tinder. In fact the inhabitants barely escaped with their lives.

THE VALENCIA HOTEL DESTROYED BY EARTHQUAKE.

Forty lives were lost in the destruction of this building.

CHAPTER VIII

DEEDS OF HEROISM AND VALOR

Personal Experiences by Survivors—How It Feels to Be Awakened by an Earthquake—A Woman Writer Makes Her Way Through the Still Rocking City—Millionaires Breakfast on the Grass Before the Ruins of Their Palaces—Automobiles Shriek and Toot Among the Falling Buildings.

To stand clear-headed and observant while the world seems on the verge of utter ruin, one must be either a very great or a very depraved soul. Nero fiddled while Rome was burning. It was the crowning act of the world's supreme pessimist.

But the San Francisco earthquake discovered men and women actuated by the most sublime motives, who not only looked with cool judgment upon "the wreck of matter and the crash of worlds," but went down into the seething furnace and remained on duty there in order that the world might know something of what was taking place in that ruined and burning city.

It was because the Postal Telegraph kept a wire into the city and because there were heroes among its staff of telegraphers that the extent of the catastrophe was known so early, making it possible for the cities of the world to begin the work of relief before the horrible rocking of the tortured city had ceased. The

lines were continually being broken and the portable office of the operators had frequently to be moved to escape the falling walls and the roaring flames. But the men had always their nimble fingers on the keys of their instruments and over the world they flashed the story of that ever-increasing tragedy.

As soon as possible the Western Union Telegraph Company also re-established a precarious communication with outside cities.

Over these few slender wires devoted special correspondents and agents of The Associated Press sent many thousands of words to a horror-stricken world.

The most graphic recital of an eye-witness to the destruction of San Francisco is that of Helen Dare, sent on the day of the earthquake to the Chicago American. She said:

"No one who has not seen such a disaster as this that has befallen San Francisco can have any realization of the horror of it, of the pitiful helplessness and inadequacy of human beings thus suddenly cast before the destroying forces of nature.

"Perhaps my own merely personal experience will tell the story as well as anything, for my personal experience is only that of the thousands of peaceful residents of the doomed city who were aroused from sleep into a paralysis of fear by the violent and continuous rocking of bed, of floor, of walls, of furniture, by the sounds of crashing chimneys, falling ornaments and pictures, breaking glass and the startled screams of women and children.

"As if with sudden impact, I felt my bed struck from the north and then heave violently. I jumped

out, putting my hands out to steady myself, but the opposite walls seemed to move away from me. The floor rocked like a boat on a choppy sea, the violence of the motion increasing and seeming ever and again to take a fresh start. It seemed as if it would never end, and yet it lasted but two minutes. My young son came running from his room and clasped in each other's arms we stood in the doorway of my room waiting, waiting. With a relaxing quiver—like the passing of a sigh, the heaving earth and billowing floor sank into repose.

"We dressed and through the disarranged furniture, over the broken glass and fragments of ornaments, we made our way out. The streets were full of people in every stage of undress and excitement, one young mother in her night dress clasping her eight-month-old baby in her arms and trying to warm it by wrapping her thin lawn garment around it. A few blocks from Mayor Schmitz's home and a block from Mrs. Eleanor Martin's, my home is in the Western Addition, where, owing to the hills of rock formation, the damage was least.

"The swarming people climbed the hills, their first fear being that a tidal wave would follow, and all eyes were on the bay, shining in the moonlight, but not even the sea wall of the land that the Fair estate is reclaiming from the ocean was hidden by water. The great gas tank near the water's edge was in flames and many believed the disturbance had come from the explosion of that.

"By common instinct the people gathered in the streets. No one wanted to return to the threatening

houses. I set out at once to see what damage had been done, finding it more appalling with every block I walked.

"My way led along Pacific and Van Ness Avenues, through the district of splendid homes of wealth and fashion, and not one of the long lines of imposing houses but had suffered severely. The home of John D. Spreckels on Pacific Avenue and Laguna Street is one of the finest and proudest in the city, and on it the parapet had cracked and crumbled and fallen like so much spun sugar out of a wedding cake. Blocks of cement had fallen from the entrance ceiling, and at one of the upper windows a wan, white face peered from the rich lace curtains at Rudolph Spreckels' handsome house at Gough and Pacific Avenues.

"The lawn was riven from end to end in great gashes, the ornamental Italian rail leading to the imposing entrance was a battered heap and Rudolph Spreckels, his wife, his little son, his mother-in-law and sisters-in-law and maid servants had set up their household on the sidewalk, the women wrapped in rugs and coverlets and huddled in easy chairs hastily rolled out. They were having their morning tea on the sidewalk and the silver service was spread on the stone coping. At house after house of the wealthy and fashionable this scene was repeated.

"Turning into Van Ness Avenue, there on my left was St. Bridget's stone church at Broadway and Van Ness with bell towers fallen and the stone walls hanging loosely from the top. There on my right, a couple of blocks away, was St. Luke's Church, a total wreck, its tower of stone just a heap of waste.

"The churches have suffered greatly. Besides these, St. Patrick's and St. Dominick's are wrecked, and the old Mission Dolores of the Franciscan fathers has the ancient tiles of its roof crushed in, though the adobe walls still stand, but the steeple of the new church beside it in toppling over, crushed in its roof.

"Claus Spreckels' home on Van Ness Avenue had its cornices and parapet crumbled like pie crust. Walter Hobart's house, that was built for Amy Crocker when she became Mrs. Porter Ashe, has all one side wrecked.

"The St. Dunstan, at Sutter and Van Ness, one of the smartest apartment houses built of stone, has its top story tumbled off and its solid walls cracked.

"At McNutt's Hospital, nearly opposite the St. Dunstan on Sutter, the patients who could be moved had been brought to the door and sidewalk, and anxious inquirers were rushing up to get news of dear ones within who were bedridden or recently operated upon.

"The new National Bank on Polk Street near Sutter Street is a wreck, with its plate-glass windows in splinters on the pavements.

"All Sutter Street, as I look ahead, seems an avenue of ruin. The Granada, a big, fashionable hotel, has top and front shattered walls.

"Signs, chimneys, whole houses as far as I can see are tumbled down and I must pick my way along the middle of the streets between the heaps of ruins.

"Here from Polk Street down I found the streets swarming with people, white, wide-eyed, still awed, and others again exceedingly voluble in their terror,

telling to every one their story of what has happened to himself.

"Van Ness Avenue, too, was swarming. There were no cars, of course. Every one must walk who has no automobile or carriage or wagon.

"Automobiles were tearing and honking madly in every direction, filled with frightened men and women and children, some dressed as though for a promenade, others partly dressed or wrapped in bed clothes.

"Never were stranger automobile parties than these. I saw one little woman carrying her baby, her tear-wet face clinging to its baby cheeks, and she wore only her night dress and a kimono as her tender bare feet pattered across the sidewalk from a mansion door to an automobile.

"Here again is an old, old woman with wrinkled face, paper-white—somebody's grandmother she is—and she is being trundled along in an invalid chair, her family, with hastily made bundles of clothes and valuables, all about her.

"It is only when I get as far as the top of Leavenworth Street hill and look down into the city's heart that I can get even a glimmering of what an awful thing an earthquake is to a city. Great clouds of smoke rise dull and dark on every side and deep red angry flames shoot long tongues through them.

"Kearney Street and Montgomery are highways of confusion. The poor south of Market, thus suddenly thrown out, are in exodus toward Telegraph Hill, carrying, dragging, trundling such household goods as they have managed to save. Here are two boys and a thin, flat chested woman trundling a sewing machine

along. A drawer of it falls out and they halt to gather up the precious scattered spools. Poor little seamstress, this is her all now.

"Here is a wagon filled with bedding and cooking utensils, a crying woman and a baby on the seat, a bird cage dangling at the tail and two men taking the part of horses. Then a crazy nighthawk hack, a white faced woman dragged from her sick bed in it, fainting in the arms of another woman.

"Then a big road machine screeching along, a red-faced fat man standing up in it mopping his brow, his eyes searching for the building that holds his business, and little street boys darting in and out snatching what they can get, throwing that away and snatching more, like children wantonly picking wild flowers.

"I see one little creature capering with three hats on his head that he had taken from a show window. The banks and safe deposit vaults, the men and boys employed there, are busy pulling out drawers full of ledgers and valuable papers, carrying them away in their hands, loading them into wagons and even into wash buckets. On the steps of one bank, with the fire only a block away, I see a man wringing his hands and crying aloud, 'Will he never come; will he never come with the combination? My God, why doesn't he come?'

"A theatrical man comes running along telling how the Grand Opera House has fallen in and is on fire with all Conreid's grand opera settings and the singers' beautiful costumes going up in smoke. He laughs idiotically, poor chap, and says: 'Sudden close of the opera season, isn't it?'

"The Majestic Theater is a ruin, too, with its roof fallen in.

"I try to make my way to the ferry, first down one street and down another leading to the water front. Each one as I try, from Post to Washington, is closed by fire or wreckage, and there is no way through. On Washington Street, opposite the old postoffice, a building has completely collapsed and under its edges are horses struggling and dying.

"At last we find an open way on the next street and with the warmth of the blaze of water front saloons on my back I hurry across the upheaved street and twisted car tracks. This is made ground, and the earthquake played with it as a child plays with a cardboard, cracking, creasing, bending it.

"On the bay side of the water front the old docks have tumbled in and are like so much kindling wood. The tower of the ferry building is destroyed and broken, the ball at its top hanging over drunkenly on its slender pole and the clock, like all the city's clocks, stopped to mark the time of the earthquake.

"From this point there is something colossal in the disaster that has befallen the city. A great cloud of smoke is rising, magnificent and overwhelming in its proportions, growing ever black and blacker toward the ground, spreading wider and wider.

"The journey from San Francisco to Stockton was a succession of perils. Fear was felt for the stability of the ferry building when the crowds rushed upon the boat and again for the Mole when they rushed off. The security of the rails to Oakland was suspected and the train traveled cautiously.

"From East Oakland nothing was known of incoming trains or the condition of the road. Collisions were imminent and every curve was breathlessly rounded. Each bridge and trestle offered a new danger, and when the train crept into the Altamont tunnel it seemed as if no one breathed in any dark car and a sigh swept through when the daylight gleamed at the other end.

"One passenger from San Jose told me that Agnew's Asylum was thoroughly wrecked, the patients in the incurable ward nearly all killed, and the rest are at large."

Mrs. Spicer Dickenson, an aged woman of Brooklyn, N. Y., and two young companions were members of an excursion party that arrived at the Palace Hotel two days before the calamity befell San Francisco. When the first great tremble caused the big caravansary to rock and sway the three women dressed hurriedly while plaster fell about them, and leaving their trunks, sought the street.

A laundry wagon driver gave Mrs. Dickenson a seat with him and drove west out of the business district away from the danger of tall buildings. The younger women walked. At Market and Valencia Streets the wagon driver turned back to carry others to safety.

After they had waited more than an hour, only to be refused a hundred times or more, a young man with an automobile agreed to make the attempt to reach San Jose for $150. The price to the terror stricken women was a trifle. At San Jose they paid $100 for another automobile to take them to Salinas.

Dr. Woods Hutchinson, consulting physician at Ar-

rowhead, Hot Springs, was occupying a room on the fourth floor of the St. Francis Hotel when the great earthquake came.

"The shock awoke me," said Dr. Hutchinson, "and the hotel was surging and shrieking like a ship at sea. The sensation was similar to that experienced by myself in a Kansas cyclone some years ago. It was as if the universe was crashing about my ears.

"There were four or five plunging shocks, one after another. The hotel was badly cracked and warped but it withstood the shock nobly. It came out of the quake about the best of any of the buildings I saw."

Dr. Hutchinson, after dressing, went out on the streets, and learning that the injured were being taken to the Mechanics' pavilion he made his way there and volunteered his services.

"Between 300 and 400 wounded were cared for while that building stood," said he. "I saw eleven dead who succumbed to wounds after being brought in. None of the wounded was burned in that building as reported. When the firemen warned the physicians and nurses that the building was doomed wagons were brought and the wounded were loaded in. When I left there were not to exceed a dozen remaining and the fire had not yet reached the building.

"I, with most of the other guests of the St. Francis, staid at that hotel until midnight, when we were forced out by the fire. I took a blanket and my personal effects and made my way to one of the parks and passed the remainder of the night there. There were no vehicles to be had, and these would have been useless had there been, on account of the mountains of debris

in the streets. I saw hundreds with their most valuable belongings packed in trunks dragging them about the streets by ropes attached to the trunks or by huge bundles being dragged behind."

When Richard H. Cole, who was in the Palace Hotel, reached the street he found a scene of pandemonium. "Men and women were rushing about in night clothes, screaming and panic stricken," said he. "At the Market Street entrance of the hotel a woman and man were standing. The woman glanced at her husband, saying, 'John, you go right back and get some clothes.' 'What's the matter with your putting some on yourself?' said the husband, and the woman realized she was clad only in a night robe.

"In going to the ferry I noticed that the south side of Market Street had risen eighteen inches higher than the north side.

"On the ferry boat there was chaos and at the Mole in Oakland there was worse. People seemed to have gone daffy.

"I saw one woman who had carried her sewing machine all the way from San Francisco and packed it to the waiting room. Another woman was walking about talking to herself, holding a bonnet in one hand and waving a baby rattle in the other. One lady had a scarf and nightgown as her attire and clung to a parrot's cage.

"From Oakland the scene across the bay was terrible. The city was all in flames. At intervals of a few moments there would be tremendous explosions as dynamite or gun cotton was exploded in the build-

ings that stood in the way of the fire. Tongues of flame hundreds of feet long swept the skies."

George F. Williams, a Pullman conductor, reached the city shortly after the morning earthquake shocks.

"During the time I was there," said Mr. Williams, "the work of rescue and fighting the flames was going on without intermission. The bodies of the dead were being carried through the streets in every manner of conveyance. In many places the streets were impassable.

"On lower Market Street I saw a man with a team of horses and a truck, on which four bodies were piled haphazard. As I stood there a building tumbled into the street, which was already blocked in front. The flames came on apace, and the man, unable to save his horses or his freight of human bodies, sought safety in flight. As I watched, the fire licked up the dead and the living and swept onward.

"The detonations of exploding dynamite were terrible. At 1 o'clock the destruction of the Palace Hotel began. A regiment of soldiers formed a square around the tottering building, charges of dynamite were placed in the corridors, and then a moment before the time for firing they drove the people headlong before them for some distance in order to protect them from accident."

Dr. Ernest W. Fleming of Los Angeles told thus of his sensations and experiences:

"I awoke to the groaning of timbers, the grinding, creaking sound, then came the roaring street. Plastering and wall decorations fell. The sensation was as if the buildings were stretching and writhing like a snake. The darkness was intense. Shrieks of women,

higher, shriller than that of the creaking timbers cut the air. I tumbled from the bed and crawled, scrambling toward the door. The twisting and writhing appeared to increase. The air was oppressive. I seemed to be saying to myself, will it never, never stop? I wrenched the lock, the door of the room swung back against my shoulder. Just then the building seemed to breathe, stagger, and right itself.

"The next I remember I was standing in the street laughing at the unholy appearance of half a hundred men clad in pajamas—and less. The women were in their night robes; they made a better appearance than the men. The street was a rainbow of colors in the early morning light. There was every stripe and hue of raiment never intended to be seen outside the boudoir.

"I looked at a man at my side; he was laughing at me. Then for the first time I became aware that I was in pajamas myself. I turned and fled back to my room.

"There I dressed, packed my grip, and hastened back to the street. All the big buildings on Market Street toward the ferry were standing, but I marked four separate fires. The fronts of the small buildings had fallen out into the streets and at some places the debris had broken through the sidewalk into cellars.

"I noticed two women near me. They were apparently without escort. One said to the other, 'What wouldn't I give to be back in Los Angeles again.'

"That awakened a kindred feeling and I proffered my assistance. I put my overcoat on the stone steps of a building and told them to sit there.

"In less than two minutes those steps appeared to pitch everything forward, to be flying at me. The groaning and writhing started afresh.

"But I was just stunned. I stood there in the street with debris falling about me. It seemed the natural thing for the tops of buildings to careen over and for fronts to fall out. I do not even recall that the women screamed.

"The street gave a convulsive shudder and the buildings somehow righted themselves again. I thought they had crashed together above my head.

"The air was filled with the roar of explosions. They were dynamiting great blocks. Sailors were training guns to rake rows of residences.

"All the while we were moving onward with the crowd. Cinders were falling about us. At times our clothing caught fire, just little embers that smoked once and went out. The sting burned our faces and we used our handkerchiefs for veils.

"Every body around us was using some kind of cloth to shield their eyes. It looked curious to see expressmen and teamsters wearing those veils.

"Quite naturally we seemed to come to Golden Gate Park. It seemed as if we had started for there. By this time the darkness was settling. But it was a weird twilight. The glare from the burning city threw a kind of red flame and shadow about us. It seemed uncanny; the figures about us moved like ghosts.

"The wind and fog blew chill from the ocean, and we walked about to keep warm. Thousands were walking about, too, but there was no disturbance.

"Families trudged along there. There was no

hurry. All appeared to have time to spare. The streets, walks, and lawns were wiggling with little parties, one or two families in each. The men had brought bedding and blankets and they made impromptu shelters to keep off the fog.

"The cinders still kept falling. They seemed at times to come down right against the wind. They stung my face and made me restless.

"All night we moved about the hills. Thousands were moving with us. As the night wore on the crowd grew.

"Near daylight the soldiers came to the park. They were still moving in front of the fire.

"I had brought a little store of provisions before nightfall and somehow we had kept them. It seemed easy to keep things there. I walked over to the fire made by one squad of soldiers and picked up a tin bucket. They looked at me but made no move. I went to a faucet and turned it on. Water was there. Not much, but a trickling little stream. There was water in the park all night. I boiled some eggs and we ate our breakfast. Then we concluded to try to make our way back to the water front. We did this because the soldiers were driving us from that part of the hills. The flames were still after us.

"The dumb horror of it seemed to reach right into one's heart. Walking and resting, we reached the ferry near sunset. We had come back through a burned district, some four miles. I do not understand how the women stood it.

"Other parties staggered past us. They were reeling, but not from wine. It was here that the pangs

of thirst caught us. But the end came at last. We reached the ferry and the boats were running. The soldiers were there, too. They seemed to be everywhere. They were offering milk to the women and children."

Many of the hotel guests remained in the city, doing what they could to assist the wretched residents. Others made their way as best they might to nearby towns and there caught trains and hurried home to their anxious relatives. Several English tourists who were on their way around the world turned back in disgust, saying they preferred their little island where they knew the buildings would not fall about their heads.

MARKET STREET, SAN FRANCISCO, LOOKING TOWARDS THE FERRY.
Almost within an instant after the earthquake flames shot forth from hundreds of buildings. This was the beginning of the awful conflagration.

PINE AND MARKET STREETS AFTER THE EARTHQUAKE.

CHAPTER IX

TALES TOLD BY SURVIVORS

Guests Who Escaped Safely from the Hotels Relate Thrilling Experiences—Saw Buildings Sway, Collapse and Burst Into Flames—Mad Rush to the Ferry Docks—Grand Opera Stars in Deadly Peril—Spend Night in Open Air Camps with Other Refugees—Olive Fremstad, Refusing to Flee, Aids Injured and Destitute—Soldier Shoots Man to Save Him from Death in Flames.

In the great hotels of San Francisco, which were destroyed, were hundreds of guests who barely escaped with their lives. Many of them had thrilling stories to tell of the perils they passed through and the awful sights they saw.

Egbert H. Gold, president of the Chicago Car Heating Company, was at the Palace Hotel. "I was asleep on the seventh floor," he said, "at the time of the first quake. I was thrown out of my bed and halfway across the room. Immediately realizing the import of the occurrence and fearing that the building was about to collapse, I made my way down the six flights of stairs and into the main corridor. I was the first guest to appear. The clerk and hotel employes were running about as if they were mad. Within two minutes after I had appeared other guests began to flock into the corridor. Few, if any of them, wore other than their night clothing.

"I returned to my room and got my clothing, then walked to the offices of the Western Union in my pajamas and bare feet to telegraph to my wife in Los Angeles. I found the telegrapher there, but all the wires were down. I sat down on the sidewalk, picked the broken glass out of the soles of my feet and put my clothes on.

"All this, I suppose, took little more than twenty minutes. Within that time, below the Palace, the buildings for more than three blocks were a mass of flames, which quickly communicated to other buildings. The scene was a terrible one. Billows of fire seemed to roll from the business blocks, soon half consumed, to other blocks in the vicinity, only to climb and loom again.

"The Call Building, at the corner of Third and Market Streets, as I passed I saw to be more than a foot out of plumb and hanging over the street like the leaning tower of Pisa I remained in San Francisco until 8 o'clock and then took a ferry for Oakland, but returned to the burning city an hour and a half later. At that time the city seemed doomed. I remained but a few minutes, then made my way back to the ferry station. I hope I may never be called upon to pass through such an experience again.

"People by the thousands and seemingly devoid of reason were crowded around the ferry station. At the iron gates they clawed with their hands as so many maniacs. They sought to break the bars, and, failing in that, turned upon each other.

"Fighting my way to the gate like the others, the thought came into my mind of what rats in a trap

were. Had I not been a strong man I should certainly have been killed.

"When the ferry drew up to the slip, and the gates were thrown open, the rush to safety was tremendous. The people flowed through the passageway like a mountain torrent, that, meeting rocks in its path, dashes over them. Those who fell saved themselves as best they could.

"I left Oakland at about 5 o'clock. At that time San Francisco was hidden in a pall of smoke. The sun shone brightly upon it without any seeming penetration. Flames at times cleft the darkness. This cloud was five miles in height, and at its top changed into a milk white."

Adolphus Busch, the St. Louis brewer, was at the St. Francis Hotel with his family. Telling of his experiences, he said: "The hotel, when the shock came, swayed from south to north like a tall poplar in a storm; furniture, even pianos, was overturned, and people thrown from their beds.

"I summoned my family and friends and urged them to escape to Jefferson Square, which we did.

"An awful sight met our eyes. Every building was either partly or wholly wrecked, roofs and cornices falling from skyscrapers on lower houses, crushing and burying the inmates.

"Fires started in all parts of the city, the main water pipes burst and flooded streets, one earthquake followed another, the people became terrified. Regular soldiers and the militia maintained order and discipline, otherwise more horrors would have occurred and riots might have prevailed. Then the worst hap-

pened. The fire spread over three-fourths of the city and could not be controlled, no water to fight it, no light, and the earth still trembling.

"Building after building was dismantled to check the progress of the flames, but all of no avail. We were fortunate to secure conveyances and fled to Nob Hill, from which we witnessed the indescribable drama. Block after block was devastated. The fires blazed like volcanoes, and all business houses, hotels, theaters—in fact, the entire business portion—lay in ruins, and two-thirds of the residences.

"After a night of horrors we boarded the ferry for Oakland, where my private car had been since Tuesday."

Henry Bolton, secretary of the Harsha Manufacturing Company of Chicago, who was a guest of the Pacific Hotel, gave the following vivid description of the scenes in the business district:

"I was awakened by the first shock and in a second knew it was an earthquake. The motion was a spinning one, from right to left and back again. Dressing hurriedly, I rushed, with a friend, out into the streets, only to find wreckage everywhere. On Market Street fronts of buildings had fallen. Little blazes of fire broke out in all directions. Soon small buildings were in ruins. Bodies were buried beneath them. Near the Grand on the street east a drove of steers were being driven to slaughter.

"The buildings on either side were down; the street was a narrow one; the steers were piled up in a heap, buried beneath the rocks—about twenty-five of them

—five or six had escaped unhurt, as had the driver. Such a sight! People coming from everywhere.

"Smoke was pouring out of the mass of debris. As far as our eyes could see there was evidence of fire. We wended our way zig-zag about and went down in the Mission District—the poor people of the lower classes—the women carrying their children to a place of more danger than of less. By this time we began to see that there was danger of being cut off by the fires and we retreated as fast as we could—none too soon.

"The next twenty-four hours were spent by the people in moving and in abandoning their belongings. Not one per cent of the goods that people attempted to save was saved. Such a day!

"It was something remarkable to note the promptness with which the government took charge of matters through the military channels. By 9 o'clock in the morning of the 18th the city was under martial law—troops everywhere.

"Fire now raged about us. Dynamite was used by tons, blowing up buildings. The wind blew first from the south, then from the west, then from the east; I never experienced anything like it before. Thus the fire spread. We moved our grips a dozen times.

"We registered at the Savoy Hotel, just opposite the park and across from the St. Francis Hotel—four of us in one room. There we had our supper. There was another slight shock which started the women to screaming and they fled. The dining room was on the fourth floor. We, however, sat still and ate our

supper. As night came on we went up to Nob Hill and in every direction was a furnace of flame.

"We then came down through the center of the city near the ruins of the Palace and Grand. It had been supposed that the fire was under control, but now all hope was gone. The Crocker Building had at last received its baptism of fire; this was the last hope of saving the section where the Lick House and the largest banks were located. Such a rain of fire! The sky was filled with sparks from Chinatown. A grand and awful sight! Then we made our way to Oakland."

Distributed among the various hotels were the members of the Metropolitan Opera Company of New York. All the splendid scenery, costumes and musical instruments of the organization were lost in the burning of the Grand Opera House, but no one of the company was injured, though nearly all of them lost their personal effects.

Caruso, Campanari, Dippel, Eames, Sembrich, Scotti, Plançon, Reiss, Miss Walker, Miss Abbott, and other stars passed through the earthquake and fire, mingled in the crowds of refugees, ate bread and sardines purchased at suburban grocery stores, and slept in the open air, just as did 300,000 other homeless ones.

All of the opera stars had exciting experiences. The prima donnas escaped from the hotels in their night dresses, and the world famous tenors, bassos, and baritones in their pajamas, none pausing to dress when the first shock of earthquake was felt.

Caruso, the tenor, was one of the first to escape from the Palace Hotel. A few minutes after the first shock

he was found, barefooted and pajama clad, seated on his valise in the middle of the street.

One charming contralto fled from the swaying, reeling hotel in her night clothes and without stopping to save any of her personal effects. Unable to procure other clothing, she finally was compelled to don some necessary articles of attire originally designed for a man.

One singer was seen standing in the street, barefoot, and clad only in his underwear, but clutching a favorite violin, which he had carried with him in his flight.

Rossi, a favorite basso, though almost in tears, was heard trying his voice at a corner near the Palace Hotel.

M. Parvis, M. Dufriche, the baritone and stage manager, and Mme. Dufriche, the harpist, Miss Abbott, and Miss Jacoby, who were on the top floor of the Palace when the great shock came, took it for granted that death was inevitable. It seemed so utterly useless to try to do anything to avert their fate that they remained where they were, every minute expecting death. When the earthquake shock was over they dressed and made their way to the street.

Plançon and Dippel and Mme. Sembrich were at the St. Francis and the musicians and the chorus at The Oaks. Mme. Eames, Miss Fremstad, and several others were at private hotels or residences. All escaped, but had interesting experiences in trying to reach Oakland. All spent the first night in the open air camps.

Mr. Alfred Hertz, the Wagnerian conductor, was one of those quartered at the Chutes. He was given a place to sleep near the Zoo. He said: "To my

dying day I will never forget my experience when I was awakened by the roaring of lions. I knew not that I was in a jungle or den of wild beasts."

Speaking of the disaster, Sig. Caruso said:

"It instantly recalled the horrors in my native Naples, of which I have been reading. I have no doubt the earthquake here has some relation to the eruption of Vesuvius."

Miss Walker said: "We are too happy to have saved our lives to think of our dresses." Dippel spoke in the same strain, though he lost costumes valued at $15,000.

Mme. Sembrich placed the loss by the destruction of her elegant costumes at $20,000. She was fortunate enough to save her valuable pearls.

Olive Fremstad proved the heroine of the grand opera forces. She was stopping at the St. Dunstan Hotel, and was asleep when the earthquake came. The building was practically destroyed, and the young contralto narrowly escaped with her life.

When she was taken from the building, however, the singer refused to leave the neighborhood, and remained the entire day, ministering to the injured and securing provisions for the destitute. She spent all her money buying food and wine for the sufferers, and when night came, walked to the ferry and crossed over to Oakland.

R. A. Cole, a horseman, well known over the country, was at the Palace Hotel, in the midst of the scenes of horror.

"My God. I never saw anything like it," said Mr. Cole. "And I have seen things, too; I was in the St.

Louis cyclone and the Baltimore fire. They were nothing. I saw all San Francisco staggering and rocking and then in flames. I wanted to rush down and jump in the bay and shut out all the awful sights."

"It was terrible, too terrible to describe," said Mrs. Mary Longstreet. "I was on the eighth floor of the St. Francis Hotel and was awakened by a terrible shaking motion and jumped out of bed and tried to go to mother's room, but was unable to stand. The hotel building rocked like a ship in a storm, and it seemed to me that it tipped over so far at times that it could never straighten again.

"After the shock I went to mother's room. We went to the window and looked out across the square. The scene was horrible. Big buildings were in ruins, some completely demolished and others standing with great cracks in the walls, tottering and ready to fall.

"Suddenly, as we were standing there, the entire city seemed to catch fire. In all directions and as far as we could see the great tongues of flames leaped into the sky. In less time than it takes to tell it the entire part of the city between us and the ferry was ablaze. It was a beautiful, yet terrible sight.

"We remained in the hotel until 10 o'clock and at that time succeeded in getting a carriage and an automobile. We then left the hotel and drove to the home of friends a mile away. When we got there we found the house in ruins. We then went to the home of the Tevises and remained there until we were driven out by fire. Finally we found refuge at the residence of J. M. Winslow on Nob Hill.

"We slept on the floor that night, but they had no

food, and after scouring the city my brother managed to purchase ten hardtack biscuits and four boxes of sardines, and after eating these we made beds on the floor and tried to sleep.

"That night was awful. We could hear the cries of the suffering people and the crash of falling buildings all night long. Van Ness Avenue was crowded with people, mothers carrying babies, men and women packing on their backs what few things they had managed to save. Where all those people found food and shelter I cannot imagine. We had no water and almost died from thirst."

"Soldiers shot living beings to save them from the torture of death in the flames," said Miss Margaret Underhill of Chicago. "The horror of it all was so overwhelming that the sight of the dead became commonplace. The misery of the living received scarcely passing notice at first.

"I was in a three-story frame building. The house seemed to swing like the pendulum of a clock. Plaster was falling about me and pictures fell from the wall as I sprang from my bed.

"At that moment the brick chimney of the Sacred Heart College adjoining crashed through the ceiling, burying my bed beneath the debris. A second chimney fell a few feet behind me as I rushed down the hall. After the shock subsided I returned, dressed, and with the help of a friend moved my trunk to the street, where I left it to be devoured by the flames.

"Three times my friends and I stopped to make a camping place in the street where we thought the flames that were moving west would not reach us

"We stopped to watch the soldiers, firemen and policemen, who, with timbers from the wreckage, were at work on the front of a burning frame building. The front of the three-story structure had fallen outward.

"Pinned beneath the structure was a man who pleaded piteously with the men who worked to release him. His head and shoulders projected from the wreckage. With his free arm he tried to help the workers by pulling at the timbers. His eyes bulged from their sockets. One by one the men were driven back by the approaching flames until at last only one, a soldier, remained. His face was blistered by the heat.

"'Good-by,' the soldier shouted, as a sheet of flame swept around the corner of the building.

"The place was a roaring hell. The soldier picked up his rifle, which was standing against a broken timber, and turned to go. From where we stood we could see the very timber that held the man down smoke. His hair and mustache were singed.

"'For God's sake, shoot me,' he begged. His voice rose clear above the roar of the flames.

"The soldier turned and went back to within twenty-five feet of the man and said something. I could not hear what he said. Then he started to walk away.

"'Shoot me before you go,' the man yelled. The soldier turned quickly. His rifle was at his shoulder. The rifle cracked and the blood spurted from the head of the man. I covered my eyes and walked on.

"I saw mothers seated on the curbstones trying to still the hunger of their babies with beer. As we walked along the water front I saw them digging

trenches and burying piles of dead. Garbage wagons served as hearses.

"Wearied with the day, I slept soundly through the night. My bed was the rocks on North Beach."

"There was a lot of pathos and some humor in the crowded streets after the shock," said A. Dalrymple of New York, who was at the Grand Hotel. "I ran from the hotel, with the plaster showering down on my head, and the first thing I saw was a man, with blood streaming from cuts on his head and body, carrying a dead woman in his arms. He was the janitor of a three-story building and had found himself in the basement with his dead wife beside him. The building had split in two.

"I saw one big, fat man calmly walking up Market street carrying a huge bird cage in his arm, and the cage was empty.

"In Fell Street an old lady scantily dressed was pushing a sewing machine up the hill. That sewing machine was her world just then.

"At the park a man came in carrying a large, carved, wooden Japanese statue. He laid it on the grass as carefully as if it had been his wife or child.

"It seemed as if every other person was carrying a phonograph, with the big trumpet tucked under his arm. I never before realized there were so many.

"At the Panhandle in the evening was an eighty-year-old woman who had owned two buildings that were destroyed. She was the most cheerful one in the park."

CHAPTER X.

GREAT UNIVERSITY WRECKED

Earthquake Shocks Lay Low Beautiful Buildings of Stanford University at Palo Alto—Pride of Golden State in Ruins—Students Are Killed and Injured—Story of the Founding of the Institution of Learning—University of California at Berkeley not Damaged.

One of the most grievous losses resulting from the great earthquake was the almost entire destruction of the Leland Stanford, Jr., University. Only two of the fifteen completed buildings which had been erected by the greatest endowment a school ever received were left standing. One student, Junius Robert Hanna of Bradford, Pa., was killed in the fall of the buildings, as was Hans Stroh, a fireman. Several students were severely injured. The monetary loss was about $4,000,000.

Stanford University was one of the boasts of California and was admittedly the most beautiful educational institution, from the point of view of architecture, in the United States. It is situated near the town of Palo Alto, thirty miles south of San Francisco, on the coast line of the Southern Pacific Railroad. Its endowment is $30,000,000, and its enrollment of students 2,000. In nineteen years it had grown to be one of the largest universities of the

country, with twenty-six distinct buildings, a magnificent museum and a splendid memorial chapel which cost $1,000,000.

The buildings were constructed according to a uniform architectural design, and reproduced upon an elaborate scale the long lines, open arches, colonnades and red tile roofing of the old Spanish missions of California. The first corner stone was laid in May, 1887. Dr. David Starr Jordan, an eminent educator, is president, and the faculty numbers about 200 teachers.

Leland Stanford, creator of this great school, where instruction is given in almost every branch known to the system of pedagogy, without charges for tuition, was a war governor, railroad magnate and senator of California. From early manhood until his death in 1893 his career was closely associated with the upbuilding of the Golden State, and almost his entire estate has been devoted to the university which bears the name of his son. Mrs. Leland Stanford, whose tragic death at Honolulu is of comparatively recent date, was his co-worker in this magnificent philanthropy. After her husband's demise she nobly carried out the plan which they had formed together, making personal sacrifices for the good of the institution, and rushing a lengthy litigation, which for a time threatened the existence of the university, to a successful termination.

Leland Stanford, Jr., a boy of 14, died of typhoid fever during a sojourn in Italy in 1883. After the body had been taken back to Palo Alto, the country home of the grieving and childless parents, the father

dreamed a strange dream, which gave birth to the memorial university. It seemed that his young son stood before him and said: "Father, don't spend your money in a vast sorrow. Do something for humanity. Build a university for the education of poor young men."

That vision changed the course of Senator and Mrs. Stanford's life. They immediately set about the task of erecting a university as a memorial to their son upon the broad green acres of Palo Alto Farm, which he had loved. The father renounced business ventures and made arrangements by which his wealth could be made a blessing to the world. The design of the institution was made the subject of a competition in which famous architects all over the world took part and the prize was awarded to a Boston firm. Professor Jordan was called to the presidency, and the senator lived to see his dream realized, although the scheme of the institution, a double quadrangle of buildings with a chapel in the center, had only recently been completed.

After her husband's death, the panic of 1893 placed many burdens upon Mrs. Stanford's shoulders. She discovered that there was almost no ready money with which to pay running expenses and was compelled to close her town house in San Francisco, sell her jewels, live as modestly as possible, and operate for profit the wineries on her farms at Vina and Palo Alto. Then the Federal Government made her task more difficult by filing suit to recover from the Stanford estate the dead senator's pro rata share of the Central Pacific debt. This involved stock valued at $15,000,000.

A decision of the United States Supreme Court of March 2, 1896, set all of this worry of failure aside by declaring against the collection of the money from the estate. It is recorded that the receipt of the telegram announcing the decision of the court was the most joyous and notable event in the history of the institution.

In all of the trouble President Jordan stood by the institution which he had set out to establish on a firm basis. With him stood the corps of assistants. Notwithstanding the many offers, and many of them flattering ones, at largely advanced salaries, it is claimed that not a desertion was recorded in the years of hardships.

Faithfulness of this kind was followed by a period of prosperity which, within the next few years, placed the institution on the pedestal planned for it by its founder. The original plans could now be carried out, as the property to the credit of the institution increased in value and was freed from any clouded title, such as was cast upon it by the suit of the government.

To lessen the embarrassment to which the university had been subjected through the threatened financial straits Thomas Welton Stanford of Australia announced that with his portion of the bequest of the Stanford estate he would erect a library building. A number of similar bequests came at this time from the Stanford family, increasing the amount of the endowment left it by the founder and given it by his widow.

In doing all of this construction work the Board

FIRE. DEATH. RUIN AND DESOLATION.

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REFUGEES IN GOLDEN GATE PARK.

Homeless men and women trying to make themselves comfortable in their camp.

of Trustees were authorized to use the revenue from the 85,000 acres of land conveyed to the institution, but none of the land could be sold. All this was stipulated in the grant made by Mr. Stanford when he first conceived the general outline for the university.

While the trustees had the management of the financial part of the institution, the president was authorized to carry on the management of the teaching force and to lay out the curriculum and the mode of teaching. It was stated that the object of the school was "to qualify students for personal success and direct usefulness in life." In its teachings, outlined in its relation to belief in government, it was settled that the university should be "based on the inalienable rights of man to life, liberty, and the pursuit of happiness." It was also set out that the school should teach "the right and advantages of association and co-operation," in addition to "the immortality of the soul, the existence of an all-wise and beneficent Creator, and that obedience to His laws is the highest duty of man." But above all of this Senator Stanford insisted that while the school must have a religious life none of the teachings were to be sectarian. The school was likewise established as a coeducational institution.

Following the ideas of the founder, the university grants no honorary degree, and there are no comparative ranking scholarships. In fact, it has only been within the past few years that the cap and gown idea at commencement was adopted. The school was established primarily for the poor of both sexes.

It is said that the percentage of students depending

on what they could make during the scholastic year to carry them through was not less than one-third of the matriculated students.

The buildings of the university were located in an 8,000 acre tract of land. Between the university grounds and Mayfield is situated the Stanford home of Palo Alto, from which the university derives its name. It was at this place that the famous horses bred by Leland Stanford were raised. The entire sweep of land is shaded with rare plants, selected from over the entire world, including specimens from China, Australia, England, and from practically every clime. Ten acres near this place are set aside for the mausoleum of the Stanford family and a burying ground for members of the university, who shall be buried there only at the direction of the Board of Trustees.

Just at the point where the plain rises up toward the foothills the university buildings loomed into shape.

Constructed of a buff sandstone, the buildings were elaborate with arches and covered passageways. Probably the most beautiful part was the inner quadrangle, with its longest side running in two 600 foot stretches of arcades. All this was capped at the side entrances with fairy towers in the mission style, with the roofs tiled in red. With the passage of the few years since this part of the university has been constructed, the color of the stone had slightly turned to a yellow, giving an additional glow to the buildings.

Inside of the quadrangle were two and one-half acres bedded in palms, bamboos, and other tropical plants, presenting a decorative and pleasing effect not

soon to be forgotten. It was around this inner quadrangle that the large imposing buildings composing the school were located. A year or two ago not less than fifteen of the buildings had been completed and several more were in the course of construction. In erecting the buildings the general scheme as originally planned was followed, and it is estimated that the actual cost of the buildings alone, when completed, would not have been under $3,000,000.

The memorial arch, standing just inside the main gate, was one of the most conspicuous features of the university. It was 100 feet in height, 90 feet wide and 34 feet in depth. Under the arch stood a group of the Stanford family—father, mother and son. One of the most notable buildings was the museum, containing 200,000 feet of space. Two rooms were devoted to the objects collected by Leland Stanford, Jr., who was deeply interested in curios, and many of the labels were in his handwriting. In another room many of his toys were displayed.

Mrs. Stanford's death in Honolulu in the summer of 1905 was followed by a rumor of murder. She was stricken suddenly, and asserted upon her deathbed that she had been poisoned. The investigation which followed did not reveal any crime, but failed to explain many of the mysterious circumstances of the affair.

The University of California, situated at Berkeley, not many miles from Leland Stanford, escaped miraculously from the effects of the earthquake, but the town of Berkeley was seriously damaged. Between the two universities a peculiar rivalry has existed. The University of California has been backed by the

wealth of Senator and Mrs. Hearst, and each family has striven to outdo the other in generosity. The University of California has an enrollment of 4,500 students.

That Leland Stanford University will be rebuilt is beyond question. Its endowment and its reputation both are too big to allow of its perishing. Its faculty and students will stand by it in adversity and insure its rehabilitation and future prosperity. Though its buildings were wrecked, the great institution was by no means destroyed.

CHAPTER XI

CHINATOWN IS DEVASTATED

District Familiar to the World's Travelers Falls Prey to Quake and Flame—Hundreds of Orientals Perish and Throw Themselves to Death—Famous Joss Houses, Theaters and Crowded Rookeries Collapse —Panic Stricken Chinese Have No Time to Placate the Dragon of Evil in Earth's Center.

Chinatown, famed among the travelers of the world as one of the greatest points of interest in San Francisco, fell early before the withering breath of the conflagration which followed the earthquake. Situated in what was once the residence section of the early settlers of the city, its location was commanding and picturesque.

The Chinatown District extended from Kearney Street on the east to Powell Street on the west and from Clay Street on the south, to Pacific Street on the north, the whole comprising nine blocks of business houses, manufactories and dwellings. The Hall of Justice faced it on the east and directly in front of this building was Portsmouth Square, in which the Robert Louis Stevenson monument stood and in which the Chinese children found their playground the year round. The Chinese District rested on the slope of Nob Hill, the residence section of San Francisco's millionaires and leading financiers and business men.

In the quarter were many buildings of historic interest, magnificent Joss Houses, theaters, restaurants and the Chinese Consulate, where oriental visitors were royally entertained by their countrymen. These buildings, shaken by the quake, cracked, then toppled over in ruins, burying in the huge piles of debris scores of Chinese. The ornate Joss Houses were the first to fall, because of their flimsy construction, and the ever-present fires burning therein to placate the gods soon reduced the ruins to ashes.

The Celestials, awakened from their slumbers by the first shocks, deserted their dwellings in crowds and gathered in Portsmouth Square, fear stricken and voicing prayers to the gods of their houses. Countless red papers, bearing sacred hieroglyphics, were burned and cast heavenward to appease the angry gods which seemed bent upon their destruction. Holes were dug in the ground and flaming papers buried in the hope of mollifying the dragon whose anger had been aroused and whose mission meant destruction and death.

The Chinese, thousands of whom lived in the underground passageways that to many visitors and tourists were the replica of the catacombs of Paris and Rome, deserted their dens and bearing their valuables, fled to the water front. Many of these, maddened by fear, sprang into the water, despite the efforts of the troops to prevent them, and were drowned. Among these were numerous Japanese, who committed hari kari before taking the fatal plunge. With the sounding of gongs, the blare of brass, the squeaking of reed instruments, the shrieks of the panic-stricken, the

shouts of the maddened populace, the roar of the consuming flames, the groans of the wounded and the moans of the dying, pandemonium reigned, striking terror to every heart and blanching every face with emotions of horror and despair.

The population of the Chinese quarter was fully 45,000 Chinese. In addition to these there were 5,000 Japanese, while to the north in the Latin Quarter, extending from Pacific Street, across Telegraph Hill to Union Street, more than 30,000 French, Italians, Mexicans and representatives of other nationalities resided in cheap dwellings or tenements. The purlieus of the Barbary Coast which extended to the eastward of Kearney Street and northwest of Pacific Street, soon were emptied of their cosmopolitan inhabitants, all of whom fled to Portsmouth Square with such valuables as they, in their fright, could gather together for their flight for safety. Quarrels followed between the races for vantage ground; only the presence of the troops and the police ordered thither by Mayor Schmitz, prevented an open outbreak and the shedding of blood.

The scenes were reminiscent of those enacted during the earthquake of 1897, when thousands fled from their homes in the early morning hours for safety in the square. The Chinese have a belief that by digging holes in the ground and casting burning sacred papers therein, the dragon in the bowels of the earth may be appeased. Wagons loaded down with roasted pigs, fowl and other viands were brought to the scene and scattered broadcast to propitiate the angry gods who were destroying the town and whom it was necessary

to mollify so that the lives of the populace might be spared.

During the terror of the morning hours following the first shocks of the earthquake, Cum Cook Alley, in which the fish stands and gambling houses were located, was thronged by an excited horde madly fleeing from the wrath to come. Near by in Woo Tung Alley, in which the Joss Houses and offices of the various tongs, or societies, were situated, the same spectacles of horror presented themselves. Along Dupont Street, in which the pretentious business places of the quarter once did a thriving business, streams of Celestials came and went with every manifestation of madness born of dread. Stores were deserted by their owners, valuable goods hurled into the street, while from the roof tops were thrown household articles of insignificant value, imperiling the lives of those below. In every street and alley the situation was the same—all fled in terror before the flames which were sweeping up from the east and south and which, ere nightfall, held the quarter in their fiery grasp.

It is impossible to state with precision how many lives were blotted out in the Chinese Quarter, but the number must have reached 1,000. Eye witnesses state that scores of bodies were found in the underground opium dens, the victims having been suffocated. Paralyzed by the effect of opium and other drugs which intoxicated their senses, the Chinese devotees of the pipe, lost in the dreams which De Quincey so ably portrayed, lay back in their pallets and, unyielding, gave themselves up to death.

The destruction of Chinatown removed many pict-

uresque spots which, for years, were the admiration of visitors from all parts of the globe. First in importance among these may be mentioned the Chinese Theater on Jackson Street, the most famous in the United States. Many of the best actors China has produced have strutted across its stage arrayed in costly, but fantastic garments, to the accompaniment of discordant sounds such as only the average Chinese orchestra is able to produce. The productions invariably were on a costly scale, but while no scenery was employed, as in the American theaters, the costuming, for richness of texture and design, excelled anything ever seen on an English stage.

Below the Jackson Street Theater, on Kearney Street, was the old Bella-Union Theater in which, in the early fifties, the elder Booth, Murdock, Jenny Lind and other famous stars appeared. A portion of this was devoted to the Chinese drama, while the remaining portion was given up to lodging purposes. This noted theater, which long survived its usefulness and which, in its last years, sheltered the dregs of Oriental and Latin population, went down before the withering flames, the shrieks and cries of terror of those gathered in Portsmouth Square, fifty feet away, being its only requiem.

In Dupont Street, near Clay, was the famous Joss House of the Suey Sings, one of the most influential of the Chinese Six Companies. The fittings of this place were exceedingly rich and elaborate. The Joss, or god, hideous of face and form, but splendid in his finery, sat on his haunches beneath a canopy of gold cloth of rare design and bearing the device of the

sacred dragon in burnished gold thread, while at either hand stood solid hammered silver urns, bowls, and vessels used in the mystic Celestial worship. Behind the figure were ranged stands of spears and weapons of every description brought from the temples of China, and all of exquisite workmanship and great antiquity. These stands were flanked by banners of almost solid gold, beautifully garnished and covered with hieroglyphics worked in silver and gold thread, the whole contributing to make the picture one of oriental splendor seldom seen outside the sacred temples at Pekin.

Before the Joss stood the "Table of the Offerings" upon which the worshipping celestials deposited their offerings to the Joss on festival days. On this table were earthen bowls, filled with sacred sand in which burning punks rested, sending a pungent odor upward. Near this was the figure of the little Joss, before which the slave girls of the quarter threw their sticks, shaped like boomerangs. These were covered with hieroglyphics, and according as they fell the fortunes of the suppliants for favors varied.

Life in Chinatown was of a kaleidescopic nature. The Mongols, as a class, are devoted to their idols and racial traditions, and in business they are scrupulous and honest. On every New Year's day, all debts must be liquidated and "the slate" must be clean for the operations of the coming year. The feast of the dragon commemorated this important occasion and the spectacles during the nine days festivities attending the New Year's celebration, were exceedingly novel and interesting. They smacked of oriental fetishism

and with the beating of the tom-toms, the squeaking of reed instruments and the shouting of the fanatical populace, the scenes were weird and highly impressive.

Underground life in Chinatown was unique, but repulsive to people of taste and refinement. The Chinese burrowed like rats, and countless tunnels, foul-smelling and repellant, were thronged with opium-smoking hordes of celestials. Crimes of every character were committed in these underground retreats, almost without fear of punishment. Honeycombing the quarter with a system of tunnels, frequently reaching a depth of fifty feet, it is estimated that nearly one-half of the people of the quarter lived therein, removed from the light of the sun. As these tunnels seldom were walled up, it may be conceived that when the earthquake came, they caved in like sand, burying Chinese by the score. What scenes of indescribable horror must have ensued when the fleeing Chinese, caught like rats in traps, found escape cut off and inevitable death their portion. Then, happily, came asphyxia and speedy dissolution.

The animosity early shown by the people of San Francisco towards the Chinese, who increased rapidly in numbers, was marked, and late in the seventies this resulted in the so-called "sand-lot riots." The cry, "the Chinese must go," was common and the agitation reached such a pitch that a political upheaval in the state ensued. Congress took cognizance of the situation and passed a law, still in force, prohibiting the entry into the country of coolie laborers from China. This had a salutary effect upon the Chinese

immigration, which was appreciably curtailed. From time to time, however, the local authorities considered plans for the removal of the quarter from the heart of the city to Hunter's Point, beyond the Potrero on the south side of the city. These plans failed to materialize, however, and it was only after the destruction of the quarter that Mayor Schmitz announced that the Chinese section henceforth would be at that point and that permission to the Mongols to rebuild upon their old sites, would be persistently refused.

Thus, then, the famous Chinatown of San Francisco, known to the tourists of every quarter of the globe, has, in a night, become a memory. No more parties are to be organized at the leading hotels to tour the Chinese quarter, to inhale its myriad of smells, to penetrate its dens, or inspect the countless objects of oriental interest it had to offer to visitors. The spectacles on the streets, where pipe-bowl menders squatted and plied their art; vendors of edibles, of fruits, sold their wares to the accompaniment of weird cries; gaily dressed traffickers in slave girls openly bought and sold their human chattel; peddlers of fruits and flowers, suspended in baskets from their shoulders, did a thriving business; fair almond-eyed maidens, seated on their balconies or peering from the picketed windows of their cells in the blind alleys; representative people of all nations walked, stumbled in their eager efforts not to miss a single thing—all these will be seen or heard no more.

Gambling in Chinatown was common despite the efforts of the local authorities to suppress it. The Chinaman of Bret Harte is an inveterate gambler, and

"for ways that are dark and tricks that are vain, the heathen Chinee is peculiar." Fan-tan among the Chinese of San Francisco virtually was their religion and behind heavy oaken, iron-studded doors, they indulged their passion unremittingly. Large funds were raised to secure immunity from arrest or interference and it is noted that many policemen who were for years stationed in the quarter, were enabled to retire and live in comfort after the periodical investigations of bribery in Chinatown, instituted by the authorities, had been concluded to their disparagement.

The slave traffic in the quarter was openly carried on and it was prolific of endless feuds and the consequent loss of life and shedding of blood. To steal the slave girl of another was a crime for which death alone was adequate punishment. Secret societies of assassins known as hatchetmen did a thriving business when their services were required. Men were shot down or hacked to death with hatchets almost every week and investigation usually developed that a woman was at the bottom of the affair. The difficulty of apprehending the murderers was at times enormous and a competent authority asserts that of the Chinese hanged in California in the past thirty years for murder, far more than one-half were guiltless. This was the inevitable result of the endless feuds among the rival tongs, and the lack of reverence of the Chinese for an oath in American courts of justice breeding contempt of law and placing a premium upon perjury.

From the standpoint of sanitation, the presence of Chinatown was a blot upon San Francisco and its removal must ultimately prove a blessing in the future.

But its associations, picturesque and romantic as they were, will long be identified with the history of the city, if indeed they will be wholly blotted out. In the new San Francisco that is to rise out of the ashes of the old city, the phantoms of the past will thrust up their sallow fronts, reminding all that the glories of the past should not be obliterated by the achievements of the present. Hence there will be many who will view the passing of Chinatown with regret and look at the site upon which it once stood with sincere longing for the days and novel scenes that are to be no more.

CHAPTER XII

NOTED LANDMARKS GONE

Palaces of Pioneers, Great Hotels and Famous Buildings Destroyed in the Cataclysm—Stanford, Flood, Huntington and Crocker Mansions Wiped Out—Well Known Restaurants and Bohemian Resorts Burned—Fine Theaters, Newspaper Offices and Mammoth Department Stores Go Down in Ruin—Government Mint Alone is Saved.

With the destruction of San Francisco there passed away many old landmarks made famous by association with the early history of California. With these disappeared the newer monuments to the commercial prosperity of the metropolis of the Pacific Coast. Great business structures, magnificent hotels, palatial residences, noted theaters and restaurants, all went down in the common fate that overwhelmed the city.

Art as well as commerce suffered irreparable losses. The beautiful monument to Robert Louis Stevenson; the column erected to commemorate Dewey's victory at Manila; Lotta's drinking fountain; priceless collections of paintings in the Mark Hopkins Art Institute and the homes of millionaires, all were destroyed.

In one instance a valuable lot of paintings and tapestries was saved from the flames. This was the collection of William H. Crocker, which includes Millet's "Man With The Hoe," and pictures by Tenniel, Troy-

on, Paul Potter, Corot, Monet, Renoir, Puvis de Chavannes, Pissaro and Constable. The tapestries are six Flemish pieces, dating from the sixteenth century, the finest being a "Resurrection," a splendid example of tissue d'or work once owned by the duc d'Albe. These works of art were saved by Mr. Crocker's butler.

One of the first of the famous buildings to fall a prey to the flames after the destruction of the business district was the Palace Hotel. It was built in the '70s by James Ralston at a cost of $6,000,000, and was owned by the Sharon estate. Many of San Francisco's wealthiest families made their homes at the Palace, and personal property losses in art treasures, etc., were very great.

The Stanford mansion, the Huntington, the Flood and the two Crocker mansions were swept away. These were the handsomest private residences in San Francisco, and were built in the early days of the city's greatness by men who played important roles in the development of the Pacific Coast.

Down near the business district, at the corner of Post Street and Grant Avenue, stood the Bohemian Club, one of the widest-known social organizations in the world. Its membership list includes the names of many men who have achieved fame in art, literature and the commercial world. Its rooms were decorated with the works of artist-members, many of whose names are known wherever paintings are discussed. Many of these were saved. The annual summer "jinks" of the Bohemian Club, amid sylvan scenes at Redwood Grove, is a unique celebration.

CRACK IN THE EARTH IN GOLDEN GATE PARK.

This photograph was taken the morning after the earthquake and shows the effects of the shock. The fissure depicted was three feet across at its widest point. In many streets of the city similar cracks appeared.

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CHINESE REFUGEES HUDDLED IN WASHINGTON PARK.

After the destruction of China-Town the residents of that quarter fled with a few bundles they saved from the wreck to Washington Square. The picture shows them sitting helpless on the ground fearful of another shock. In the distance is Telegraph Hill with its buildings wrecked. The photograph was taken the morning after the first shock.

On special exhibition in the "jinks" room of the Bohemian Club were a dozen paintings by the old masters, including a Rembrandt, a Diaz, a Murillo and others, probably worth $100,000. These paintings, which were loaned for exhibition, were saved.

The district on California Street from Powell to Jones Streets, known as Nob Hill, contained the most palatial homes of San Francisco. The summit of the hill is perhaps 500 feet above the sea level, and a magnificent view of San Francisco Bay and the country for many miles around can be had from that point.

At the southwest corner of California and Powell Streets, just on the brink of the hill, was the residence of the late Leland Stanford. At the death of Mrs. Stanford about a year ago in Honolulu the mansion became the property of Leland Stanford University. It contained many art treasures of great value.

On the southeast corner of the same block stood the home of the late Mark Hopkins, who amassed many millions along with Stanford, C. P. Huntington and Charles Crocker in the construction of the Central Pacific Railroad from Ogden to Sacramento. The Hopkins home was presented to the University of California by his heirs, and it was known as the Hopkins Art Institute.

Across California Street from the Stanford and Hopkins homes was the Fairmount Hotel, which had been under construction for more than two years. It was a handsome white stone structure, seven stories high, occupying an entire block. The land was owned by the late Senator James Fair, who was associated with John W. Mackay, James Flood and James O'Brien,

all of whom amassed great fortunes in Nevada mines.

The Fairmount Hotel was built by Mrs. Herman Oelrichs, who, before her marriage, was Miss Therese Alice Fair, daughter of Senator Fair and sister of Mrs. W. K. Vanderbilt, Jr. Not long before the earthquake she traded the hotel, which was valued at $3,000,000, for the Rialto and Crosby Buildings, and both of these were destroyed.

One block west of the Fairmount was the Flood home, a huge brown stone mansion, said to have cost more than $1,000,000. The Huntington home, which was the least pretentious of the residences of the "big four," occupied the block on California Street, just west of the Flood house. The Crocker residence, with its huge lawns and magnificent stables, was on the west of the Huntington home. Many other beautiful and costly homes were situated on the hill.

The Southern Pacific Hospital, at Fourteenth and Mission Streets, was dynamited, the patients having been removed to places of safety. The Linda Vista and the Pleasanton, two large family hotels on Jones Street, in the better part of the city, were blown up.

Farther west on Post Street stood the home of the Olympic Club, the oldest regularly organized athletic association in the United States, and famous for its appointments and for the number of athletes it has developed. The building was worth $300,000, and its furnishings were of the finest quality. Nothing remains but a mass of steel and stone.

The great new Flood Building, built by James Flood at a cost of $4,000,000 and occupied about a year ago; the new Merchants' Exchange Building on California

Street, erected at a cost of $2,500,000; the Crocker Building at Montgomery and Market Streets, a $1,000,000 structure; the Mills Building at Bush and Montgomery, costing the same sum; the new Shreve Building, at Post Street and Grant Avenue, costing $2,000,000, and occupied by the largest jewelry store on the coast, were some of the new structures destroyed.

On Market Street the Phelan Building, one of the earliest attempts at a pretentious work of architecture in the business district and covering the most valuable piece of real estate in San Francisco, is gone. The great group of buildings that stood on a piece of ground bounded by Larkin, McAllister and Grove Streets, erected by the City of San Francisco at a cost of $7,000,000 and known as the city and county buildings, became a mass of ruins.

The beautiful St. Francis Hotel, facing Union Square, erected at a cost of $4,500,000, was burned to the ground.

The magnificent group of buildings at Van Ness Avenue and Hayes Street of the St. Ignatius College and Cathedral, probably worth $2,000,000, and St. Dominick's Church on Steiner Street, near California, and the Emanuel Synagogue, a handsome structure of the oriental type on Sutter Street, were wiped out.

The branch United States Mint on Fifth Street near Market was not destroyed, but was damaged to a considerable extent. Its escape was due to the fact that it occupies a large square, separated from surrounding buildings by a wide paved space. Two blocks west of the mint stood the splendid new postoffice building,

finished about six months ago and erected at a cost of $2,000,000 for actual construction. It was one of the most beautiful buildings in the United States, said to have been equaled in architectural excellence only by the new Congressional Library at Washington. It was destroyed.

Down in the older business sections were many old landmarks, but they exist no longer. The Occidental Hotel, on Montgomery Street, for years the headquarters for army officers that visited San Francisco; the old Lick House, built by the philanthropist, James Lick; the old Russ House, also on Montgomery Street; the Nevada National Bank Block, the Hayward Building at California and Montgomery, a modern structure of ten stories; then to the eastward the splendid example of the severe Gothic style, the California National Bank; the First National Bank, the First Canadian Bank of Commerce, the London and San Francisco, on California Street; the London, Paris and American Bank and the Bank of British North America, on Sansome Street; the large German-American Savings Bank, also on California, all were destroyed.

The California Hotel and Theater on Bush Street, near Montgomery; the Grand Opera House, on Mission Street, where the Conried Grand Opera Company had just opened for a series of three weeks' opera; the Orpheum, the Columbia, the Alcazar, the Majestic the Central and Fisher's were some of the playhouses to which pleasure-loving San Francisco was wont to flock. All were burned.

Among the splendid apartment houses destroyed were:

On Geary Street—The St. Augustine, the Alexandria, the Victoria.

On Sutter—The Pleasanton, the Aberdeen, the Waldeck, the Granada.

On Pine Street—The Colonial, the Loma Vista, the Buena Vista.

On Ellis—The Dufferin, the Hamilton, the Ellis, the Royal, the Hart, the Ascot and St. Catherine.

On O'Farrell Street—The Eugene, the Knox, the St. George, the Ramon, the Gotham.

On Taylor Street—The Abbey.

On Eddy Street—The Abbotsford.

On Turk Street—The Netherlands.

On Pol Street—The Savoy.

On Bush Street—The Plymouth.

San Francisco was famous for the excellence of its restaurants. Many of these were known wherever the traveler discussed good living. Among them were the "Pup" and Marchand's, on Stockton Street; the Poodle Dog, one of the most ornate, distinctive restaurant buildings in the United States; Zinkand's and the Fiesta, on Market street; the famous Palace grill in the Palace Hotel, and scores of Bohemian resorts in the old part of San Francisco. They are no more.

At the junction of Kearney, Market and Geary Streets stood the three great newspaper buildings of San Francisco—the Call, the most conspicuous structure in all the city, seventeen stories high; across the street, the Hearst Building, the home of the Examiner, and to the north of this, on the opposite side of Market Street, the Chronicle, a modern ten-story newspaper and office building, with the sixteen-story annex

under course of construction. All were destroyed. Two blocks north on Kearney Street were the Bulletin and the Post Buildings. They also are gone.

Among the mammoth department stores destroyed were the Emporium, Hales & Fragers', on Market; on Kearney Street, the White House, O'Connor & Moffatt's, Newman & Levinson's, Roos Brothers', Raphael's, the Hub and many lesser establishments; on Geary Street, the Davis, the City of Paris, Samuel's; on Post Street, Vel Strauss'; on Sansom Street, Wallace's, Nathan, Dohrman & Co.'s and Bullock & Jones'.

CHAPTER XIII

RUIN OF SAN JOSE AND SANTA ROSA

Two of California's Prettiest Cities Destroyed by the Earthquake—Business Districts Leveled by the Shock and Dwellings Shattered—Flames Sweep the Wreckage—Many Persons Perish—Fatal Landslide on Loma Prieta Mountain—Score of Towns Along Coast Suffer Severely.

Quite overshadowed by the destruction of San Francisco, but in itself a tremendous disaster, was the fate that overcame other cities along the California coast. Stricken by the same earthquake that shattered the metropolis, the beautiful towns of San Jose and Santa Rosa fell in ruins, and a dozen others sustained damage more or less serious. The total property loss in these places approximated $12,000,000 and many persons were killed. The larger towns were put under martial law and patrolled by militia, and relief work was begun promptly.

In San Jose, one of the prettiest cities of California, the ruin was almost complete. The entire business section was destroyed, and scarcely a building in the place escaped serious damage. Nineteen persons were killed. Among the buildings wrecked by the shock were the St. Patrick's, First Presbyterian, Centella Methodist, Central Christian and South Methodist Churches; Auzerias Building, Elks Club, Unique Thea-

ter, High School, Rucker Building and Vendome Hotel Annex. The Dougherty Building and several adjoining blocks were destroyed by fire.

Near San Jose, at Agnew, occurred one of the most distressing incidents of the disaster. The state hospital for the insane was located there and the earthquake demolished the buildings of that institution. Eleven officers and employes of the asylum perished and of the patients nearly two hundred were killed and most of the others injured. When the buildings collapsed many of the patients were pinned under the fallen walls.

The padded cells had to be broken open and more dangerous patients were tied to trees out on the lawn in lieu of a safer place. The doctors and nurses stuck heroically to their posts and 100 students from Santa Clara College went over in a body to assist in succoring the wounded. Tents were set up in the grounds of the institution and there the patients were cared for until a temporary building could be erected to house them.

In the catastrophe at Santa Rosa about one hundred persons lost their lives and the damage to property was estimated at $800,000. This beautiful town is in the prosperous county of Sonoma and has a population of 7,000. When the earthquake shocks came the business portion fell in ruins and nearly every residence was damaged, many being badly wrecked. The brick and stone business blocks, together with the public buildings, were all thrown flat. The court house, Hall of Records, the Occidental and Santa Rosa Hotels, the Athenaeum Theater, the new Masonic Tem-

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FIREMEN FIGHTING THE FLAMES IN THE GREAT SAN FRANCISCO DISASTER.

The earthquake broke the water mains so that the fire engines were useless except in the streets near the Bay, where they were operated by fire tugs, but with no avail. The conflagration had its will for two days and was halted only with dynamite and cannon.

RUINS IN THE RESIDENCE DISTRICT OVERLOOKING THE CITY'S CENTER.
The big steel buildings in the business portion of the town escaped total destruction. But many of the finest residences, with their treasures of art and bric-a-brac, were completely ruined.

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RUINS OF THE HALL OF JUSTICE.

MARKET STREET BEFORE THE DISASTER.
View of chief business thoroughfare of San Francisco. Call Building on the right.

ple, Odd Fellows' Block, all the banks—everything—went, and in all the city not one brick or stone building was left standing, except the California Northwestern Depot.

Then, as in San Francisco, fires broke out at many points and swept over the ruins.

The entire population of the town fled to the outskirts and slept in the open for many nights, being afraid to occupy their shattered houses. There was no suffering from hunger, however, for provisions were brought in from the surrounding country at once. Two blocks of buildings, also, had escaped the flames and from their ruins large quantities of groceries and clothing were obtained and added to the common store. A company of militia and forty marines from Mare Island preserved order and helped in rescuing the injured and recovering the bodies of the dead.

At Palo Alto the beautiful buildings of Stanford University were thrown down and several persons killed. Berkeley, too, suffered severely, the city hall and many business blocks being shattered, though the University of California escaped as by a miracle. The final shock of the morning caused a tidal wave that inundated the bay side of the city for several hundred yards.

The City of Salinas, near San Francisco, was badly damaged by the first shock, and two other shocks occurred in the afternoon. The total damage in Salinas was $2,000,000.

Spreckels' sugar factory, about three miles from Salinas, was destroyed, with a loss of $1,500,000. Among the buildings destroyed in the town were the

Ford & Stanbury Building, dry goods; Elks' Hall, Masonic Building, the Knights of Pythias Building, Armory, Porter & Irving's store, Logan Cyclery, Odd Fellows' Building, city hall and high school. Every window in the city was broken, and chimneys toppled over and crashed through roofs. No lives were lost, though several persons were injured.

A terrible landslide occurred on Loma Prieta Mountain. Nine men were buried alive in their cabins at the Hinckley creek mill of the Loma Prieta Lumber Company. The slide came down one side of the canyon and swept over to the other side, burying the saw mill and the cabins in 100 feet of dirt. Another fatal landslide occurred at Deer Creek mill, just above Boulder Creek, two men, John Hannah and James Franklin, being caught in their cabins and killed.

Watsonville sustained much damage to buildings, the Pajaro Valley Bank, the Porter Building and the high school being more or less damaged.

At Napa many buildings were shattered, and the property loss amounted to $250,000. Damage to the extent of $40,000 was caused at Vallejo. At Collinsville, on the Sacramento River, the shock wrecked a hotel without injuring any of the inmates. Chimneys were toppled over at Woodlands, and the tremor of the earth was plainly felt at Hazen, Nevada, fifty miles beyond Wadsworth.

Fort Bragg, one of the principal lumbering towns of Mendocino County, was almost destroyed by a fire that followed the earthquake shock. The bank and other brick buildings were leveled by the seismic dis-

turbance. One man was killed and scores of persons were injured.

The town of Tomales, Marin County, also was ruined and two children were killed. All the large stores and the new Catholic Church, a stone structure, were leveled by the shock.

Oakland suffered a property loss of about $500,000 and Alameda about $400,000, but the loss of life in these places was small.

Stockton felt the quake severely, and the Santa Fe bridge over the San Joaquin River settled several inches. No indication of the earthquake was perceptible at Santa Barbara and south of there. It was felt as far north as Marshfield, Oregon, and telegraph wires along the Union Pacific Railroad were thrown down as far east as Ogden.

In Santa Cruz, on Monterey Bay, the court house and twelve other buildings collapsed. The shock was followed by a tidal wave that swept away three buildings on the beach.

In Solano County a long section of the Southern Pacific Railroad disappeared from view between the stations of Sprig and Teal in the Suisun marshes. For a distance of a mile and a half the track sank down from three to six feet, and at another point nearly 1,000 feet of track completely disappeared. Great crevasses opened on each side of the track through the marshes, and a wide sea of water flowed over the lowlands between Suisun and Benecia. A short distance below Suisun a switch engine sank into the ground a depth of three feet.

The villages of Healdsburg, Geyserville, Cloverdale,

Hopeland and Ukiah were badly shaken, and Brawley, a little town 120 miles south of Los Angeles, was practically destroyed.

J. E. Rainey made a trip through the country between Monterey, Castroville and Tajaro just after the seismic disturbance and thus told what he saw there:

"Great sinks, extending along the tracks as far as the eye could reach and ranging from four to six feet in depth, have been left in the surface of the earth, a mute testimony of the awful twisting and wrenching of the internal forces.

"For distances of from one-quarter to three-quarters of a mile the road bed has dropped from four to six feet.

"Between Castroville and Monterey, along the railroad tracks and in the fields, mud geysers have been excited into action, spouting a boiling hot, bluish, shale-colored mud to a height of from ten to twelve feet. In places these geysers are from four to ten feet apart and in other sections they are fifty feet or more apart.

"At Fairman Section Foreman H. J. Hall and Roadmaster Goldman saw these geysers in violent action. The mud was spouted through the sand and loam. I saw this mud along the tracks for several miles, with here and there places where the geysers had been recently at work.

"The railroad tracks for almost the entire distance are twisted out of all semblance of tracks. Between Seaside and Del Monte the tracks have settled fully four feet and the rails have been twisted all shapes.

"Near Castroville, while the disturbance was at its height, Foreman H. J. Hall grabbed his two children

and left the section house. As they passed through the door they saw the earth open and a crevasse, which Hall described as fully six feet wide, open and close several times. I visited the scene at midnight and found the section house standing in a pool of geyser mud. This mud was like quicksand, and of unknown depth.

" Panic reigned at the Hotel Del Monte immediately following the first earthquake shock, which proved to be the most disastrous to that famous hostelry. The roof and a portion of the upper floor was wrecked and fell in upon the heads of the unsuspecting guests. So far as could be ascertained but two persons lost their lives—a bride and bridegroom from Arizona."

The state prison at San Quentin stood the shock well. The walls were cracked and a few chimneys were upset, but no further damage was done. During the first big shock the convicts set up wails that could be heard for a mile. They acted like wild animals and tore at their bars like maniacs. Warden Edgar called out all guards, lined the walls and released the prisoners into the big yard.

CHAPTER XIV

DESTRUCTION OFTEN PREDICTED

San Francisco Many Times Shaken by Earthquakes—Geologists Had Expected Disaster Because of City's Dangerous Location—Two Hundred and Fifty Shocks in Fifty Years, Though Loss of Life Was Infrequent—Dire Prophecies of Seers—Serious Fires in Golden Gate City's Earlier Days.

The fate that befell San Francisco had long been expected by scientists. The city's location was more dangerous than that of any other large city in the United States and often had its destruction by earthquake been predicted. Seismic shocks have been of common occurrence along the Pacific Coast of California, and nowhere had they been felt oftener than in the Golden Gate City. But the warnings of geologists and of nature were alike unheeded by the devoted city. Its people went on erecting palatial buildings and beautiful residences, growing happier, more prosperous and more gay year by year, ever trusting that their glorious city would be spared serious damage in the future as it had been in the past.

"Scientists have known for many years that San Francisco is dangerously located and probably would sooner or later be subject to severe shocks," said President Charles R. Van Hise of the University of Wisconsin, one of the best known geologists in the United

States. "The fear repeatedly has been expressed that San Francisco would be the first to show the effect of an earthquake upon modern structures, for it has been well understood that the city has the most dangerous location with reference to earthquakes of any large city in the United States."

And the end is not yet, if authorities are to be believed. The scientists of Yale College agree that the whole California region is liable to be attacked by earthquakes at any time. Professor Louis V. Pirrson, head of the Department of Physical Geography, said:

"The whole configuration of the California coast shows that there will continue to be earthquakes in that region. It would be the part of prudence to put up buildings with that condition in view.

"It doubtless would be difficult to connect this with any recent shock on any other part of the globe. The earth is so big that a city of the size of San Francisco is a mere grain of sand on its surface, yet there have been earthquakes which have been a series of shocks which have passed along almost around the globe."

Professor J. Paul Goode of the Geography Department of the University of Chicago said: "The earthquake in California probably was caused by the position of the Rocky Mountains. These mountains are still young and in process of formation. They are slowly rising, and the quake is simply one of the symptoms. The process of adjustment is slow, and it is reasonable to suppose that other earthquakes as violent as this one will result in the same place."

"It is probable that this great earthquake is the

result of movements along one or more fault lines in the course of the natural growth of the coast ranges, which geologists long have known to be still in progress throughout the entire extent of California," said Ralph Stockman Tarr, professor of dynamic geology and physical geography at Cornell University. "That the coast ranges are growing is proved by numerous evidences. There are upraised shore lines at various points along the California coast, proving recent uplift. The Bay of San Francisco is the result of a geologically recent subsidence of this part of the coast which has admitted the sea into the gorge that the Sacramento River formerly cut across the coast ranges. This forms the Golden Gate, and in the broader mountain valley behind the sea has spread out to form the bay. If the center of greatest disturbance was in or near San Francisco, the site of that city is in danger of future upheavals."

In Europe, as well as in America, the San Francisco earthquake was the topic of study and discussion by scientists for many weeks. Seismographists propounded various theories as to its cause, opinion being divided as to its connection with Vesuvius. In Great Britain it was suggested that Edinburg is in the danger zone just as San Francisco is. Certainly the Scottish capital is built upon an extinct volcano. Here are a few of the theories put forward by eminent British seismographists to account for the disaster:

Contraction of the earth's surface, the release of overheated steam in the interior of the earth, the failure of the earth to swing true on its axis owing to the action of sunspots, a landslip of geological strata.

LOOKING DOWN MARKET STREET.
A splendid picture of this beautiful broad street, the most important one in the ill-fated city. The Examiner Building is on the left.

ST. FRANCIS HOTEL AND THE DEWEY MONUMENT.

This monument, made of white marble, was erected by the people of San Francisco in commemoration of Dewey's famous victory. It is in Union Square in the heart of the city.

Most interesting of all is the statement by Prof. Milne, who is considered the most eminent of English seismic experts, and who, at his home in the Isle of Wight, has an instrument which not only tells him whenever an earthquake occurs, but the exact spot on the earth. The instrument consists of an object like a common street lamppost set upon a pedestal of concrete which is sunk down through the earth to a chalk substratum. This lamppost is sensitive to every vibration of the earth, and is connected with a needle which passes across a cylinder of paper blackened by being held over an ordinary lamp.

When a disturbance of the earth's surface takes place the lamppost is shaken, and the connecting wire at once transfers the vibration to the smoked paper. The length of the scratches enables an observer to calculate the extent of the earthquake and its distance away from the recording instrument. Prof. Milne was out golfing at the time of the San Francisco earthquake, but on returning home a glance at the instrument told him that a tremendous upheaval of the earth's crust had taken place. It was the work of a few moments to calculate where it had taken place.

Having developed his photographic records, Prof. Milne was able to discuss the origin of the earthquake, which, he said, was evidently upon land. If it had been sub-oceanic it is probable that there would have been great sea waves. Its origin, therefore, is presumably in the range of hills running parallel to the coast, at the foot of which lies San Francisco.

This range of hills may be regarded as an addition to the western coast of North America when the Sierra

Nevada had been raised up, which occurred after the formation of chalk in England. The site of San Francisco was beneath the ocean. Sediments accumulated until they attained enormous thickness. By horizontal pressure these were buckled up to form the coast range, and the great disturbance which has just taken place indicates this kind of activity is still in operation.

The probability is that these strata have been overbent and have suddenly yielded with a crash, and a great fault or fracture in the earth's crust has been formed. On one side the ground has suddenly fallen, and it was the impact of this on what was beneath which gave rise to the great shakings which have been propagated all over the world and ended so disastrously for San Francisco.

Sir Robert Ball's opinion was asked as to the possible connection of the eruption of Vesuvius and other recent seismic disturbances and the disaster at San Francisco.

"To the popular mind," he said, "the connection would seem obvious, but I do not think they had any direct relation to one another. In this view I am backed up by the opinion of Prof. Milne, who is the greatest living authority on the subject. Had there been any connection I should have looked for some special manifestation in the Sandwich Islands."

Professor Matteucci, director of the observatory on Mt. Vesuvius, sent from his perilous post on the volcano the following opinion on the California earthquake:

"Notwithstanding the distance separating Mount Vesuvius from California and in spite of lack of exact

coincidence between the eruption of the volcano and the earthquake at San Francisco, I believe that a close relation exists between the two phenomena, which I consider to be different effects of a common cause.

"The surface of the earth, since the remote epoch of the formation of its solid crust, has suffered laceration if it yielded to internal pressure, thus producing volcanic eruptions, or, when it resists the pressure of incandescent masses below, has reproduced their motions, which we call earthquake. My opinion is that the eruption and earthquake have reciprocal and intimate connection, which is rendered most evident by the present phenomena at Mount Vesuvius and in California."

"The slipping of the rocks, perhaps only a fraction of an inch, not more than three or four, is probably the cause of the San Francisco catastrophe," said Henry Windsor Nichols, assistant curator of the Field Columbian Museum, Chicago, the day after the quake. "The Sierra Madre Mountains, geologically speaking, are young and are still slowly growing. The faulting of the rocks is going on too rapidly, causing a fracture. All along the mountain range there is a line of weakness, and from the meager data at our disposal I think the earthquake due to such a slipping. When we get the results from the various seismographs we can form definite conclusions. There are no seismographs in Chicago, because the jar of the street car or heavy traffic would cause as great a disturbance as does a great earthquake.

"I think perhaps the conditions in California are similar to those of the great Charleston earthquake,

and do not believe this shock holds any relation to the eruptions of Vesuvius. There is no reason why the shock should come to San Francisco rather than any other place along the coast. Judging from the behavior of previous earthquakes, this one has spent its force, though tremors of more or less force may be expected for several days.

"Chicago is almost entirely free from danger of an earthquake. There are no mountain ranges close enough to affect it, and, while the land here seems to be gradually sinking, it is not of such a character as to cause earthquakes."

Professor U. S. Grant, head of the geological department at Northwestern University, was of the opinion that the earthquake which shook the western coast was in no way connected with the eruptions which had occurred recently at Mount Vesuvius. He ascribed the seismic disturbances to the reformation of the earth which is constantly going on under the earth's crust in that locality, and cited instances of slight earthquakes which had occurred in that vicinity during the previous three months at the rate of two to three a month.

"California and the coast states are the most noted places in the world for these earthquakes," said the professor. "According to the data of the Lick Observatory, two or three shocks are felt each month. This one seems to be far greater in extent and severity than any previous one."

Professor Joseph Kathan, who was present with the noted Italian, Professor Palmicri, at the eruption of Vesuvius in 1881-2, when Palmicri invented the seis-

mograph, an instrument recording the time and the force of the shock, said:

"California lies in what is known as the volcanic belt, which runs entirely around the world, including Vesuvius, Aetna in Italy, Formosa in Japan, and the western coast of the United States in its course. The entire belt is affected when such violent internal disturbances take place, such as those at Vesuvius.

"Martinique, which is well known as a center of volcanic action, is the beginning of this line, which includes the Canary Islands, portions of Spain, and a large part of Italy in its path. Aetna and Mount Vesuvius in Italy are both in the direct path. Southern Russia is touched, then the Island of Japan, particularly Formosa, comes, the line going from Formosa to the western coast of the United States. It was in the regular course of the volcanic belt that California was reached."

Mark Twain, who was a newspaper man in San Francisco in 1868, thus describes the earthquake that stirred the city that year:

"It was just after noon on a bright October day. I was coming down Third Street. The only objects in motion anywhere in sight in that thickly built and populous quarter were a man in a buggy behind me, and a street car wending slowly up a cross street. Otherwise all was solitude and a Sabbath stillness. As I turned a corner around a frame house there was a great rattle and jar, and it occurred to me that here was an item—no doubt a fight in that house.

"Before I could turn and seek the door there came a really terrific shock; the ground seemed to roll under

me in waves, interrupted by a violent joggling up and down. There was a heavy grinding noise as of brick houses rubbing together. I fell up against the frame house and hurt my elbow. I knew what it was by this time, and from mere reportorial instinct—nothing else—took out my watch and noted the time of day. At that moment a third and still more severe shock came, and as I reeled about on the pavement, trying to keep my footing, I saw sights both tragic and comic.

"The entire front of a tall, four-story brick building in Third Street sprung outward like a door and fell sprawling across the street, raising a dust like a great volume of smoke. And the man in the buggy went overboard, and in less time than I can tell it the vehicle was distributed in small fragments along 300 yards of street. One could have fancied that some one had fired a charge of chair rounds and rags down the thoroughfare. The street car had stopped.

"The horses were rearing and plunging, the passengers rushing out at both ends. One fat man had crushed half way through a glass window on one side of the car, got wedged fast and was squirming and squealing like an impaled madman.

"Every door, every house, as far as the eye could reach, was vomiting a stream of human beings, and almost before one could execute a wink and begin another there was a massed multitude of people stretching in endless procession down every street my position commanded. Never was solemn solitude turned into teeming life more quickly.

"The wonders wrought by the great earthquake—

these were all that came under my eye, but the tricks it did elsewhere and the fire and light over the town made toothsome gossip for nine days. The destruction of property was trifling—the injury to it was widespread and somewhat serious.

" The 'curiosities' of the earthquake were simply endless. Men and women who were ill or were taking a siesta or had dissipated to a late hour and were making up lost sleep thronged into the public streets in all sorts of queer apparel, and some without any at all. One woman who had been washing a naked child ran down the street holding it by the ankles as if it had been a dressed turkey.

" Crowds of citizens who were supposed to keep the Sabbath strictly rushed out of saloons in their shirt-sleeves, with billiard cues in their hands. Dozens of men, with their necks swathed in napkins, rushed from barber shops, lathered to the eyes, or with one cheek clean shaved and the other still bearing a hairy stubble. Horses broke from stables and a frightened dog rushed up a short attic ladder and out onto a roof, and when his scare was over had not the nerve to go down again the same way he had gone up.

" The plastering that fell from ceilings in San Francisco that day would have covered acres of ground. For some days afterward groups of eyeing and pointing men stood about many a building, looking at long, zig-zag cracks that extended from the eaves to the ground. Four feet of the tops of three chimneys on one house were broken squarely off, and turned around in such a way as to completely stop the draught. A crack a hundred feet long gaped open six inches wide

in the middle of one street and then shut together again with such force as to ridge up the meeting earth like a slender grave.

"A woman, sitting in her rocking and quaking parlor, saw the wall part at the ceiling, open and shut twice like a mouth, and then drop the end of a brick on the floor, like a tooth. She was a woman easily disgusted with foolishness, and she arose and went out of there. One woman who was coming downstairs was astonished to see a bronze Hercules lean forward on its pedestal as if to strike her with its club. They both reached the bottom of the flight at the same time in a pile.

"The first shock brought down two or three huge organ pipes in one of the churches. The minister, with uplifted hands, was just closing the services. He glanced up, hesitated, and said:

"'However, we will omit the benediction.' In the next instant there was a vacancy in the atmosphere where he had stood.

"After the first shock an Oakland minister said: 'Keep your seats. There is no better place to die than this,' and added after a third: 'But outside is good enough.' He then skipped out of the back door.

"Such another destruction of mantel ornaments and toilet bottles as the earthquake created San Francisco never saw before. There was hardly a girl or matron in the city but suffered losses of this kind. Suspended pictures were thrown down, but, oftener still, by a curious freak of the earthquake's humor, they were whirled completely around with the faces to the wall. Thousands of people were made so seasick by the rolling

and pitching of floors and streets that they were weak and bedridden for hours, and some few for even days afterward. Hardly an individual escaped entirely."

Not since 1872 had there been an earthquake in California accompanied by loss of life. In that year, on March 26 and 27, there was a most severe earthquake in the Inyo Valley. The records state that several small towns were destroyed and about thirty lives lost. The quake extended to San Francisco, where the walls of several fine public buildings were cracked and damage was done to the Lick House, a famous and historic San Francisco hotel.

In the last fifty years more than 250 earthquake shocks have been recorded in San Francisco. The most severe were in 1868 and 1898. In 1868 much damage was done to the city and many lives were lost.

The disturbance of 1898 did not result in loss of life, but caused much damage to property. This shock occurred at 11:43 p. m., March 31, and houses all over the city were shaken to their foundations.

The Mare Island Navy Yard was damaged to the extent of $150,000, and since then no buildings more than two stories high have been constructed on the government reservation. This shock of 1898 was confined to central and northern California, and severe damage was reported from interior state points.

The first recorded disturbance in California occurred in 1790. Of all the cities on the Pacific seaboard, San Francisco seems especially ill-fated. Fifty-one earthquakes visited that city from 1851 to 1865.

Sixteen times was the city shaken in 1865. The

most severe shock of that year, San Francisco's banner earthquake year, occurred October 8th, and lasted twelve hours and forty-six minutes. No lives were lost, though the shocks were the most violent since the annexation of the territory. San Francisco, San Jose, Stockton, Santa Cruz, and Sacramento felt them.

A rather severe earthquake occurred in San Francisco about the middle of January, 1900. Several distinct shocks were felt early in the morning, causing the vibration of buildings all over the city. The chief building affected was the St. Nicholas Hotel, which was severely shaken. The walls collapsed in parts of the structure and patrons were thrown out of bed and furniture was destroyed.

In 1894 there was a severe seismic disturbance in Los Angeles, which was felt throughout the city and for a radius of several miles all around. No actual damage was done, but this was the most severe shock ever felt in southern California.

A man named Cricksor once prophesied that San Francisco, Oakland, Chicago and New York would be destroyed by earthquakes on April 14, 1890. The approach of this date caused a wild panic in San Francisco, and early in April real estate values actually suffered serious depreciation as a result, and many timid people left the city. The 14th of April came, however, and nothing happened.

San Francisco has been visited by destructive fires also, in the past. Three of them, in 1849, 1850 and 1851, swept over a large part of the city, which then consisted almost wholly of frame buildings.

CHAPTER XV

IMMENSE FINANCIAL LOSSES

Property Destroyed in San Francisco Alone Valued at $400,000,000—Insurance Companies Liable for Over $100,000,000—European Concerns are Hard Hit—Prompt Payment on Liberal Lines, Involving Assessments on Stockholders—Property Damage in Other Cities Shaken by Earthquake Estimated at $12,000,000.

The great earthquake and conflagration that wiped out San Francisco destroyed property in that city alone valued at $400,000,000. Big office buildings, mighty manufacturing plants, department stores, institutions of learning, churches, thousands of small shops and innumerable dwellings, with all their contents, went down in the general ruin. Nearly as serious as this concrete loss is that, impossible to estimate, due to the long interruption of practically all business enterprises, and the sudden cessation of rentals and earnings from labor. No value could be put on the art collections, libraries and similar accumulations that were destroyed.

The property losses in other cities of California that suffered from the earthquake are estimated as follows:

	Damage.
Oakland	$ 500,000
Alameda	400,000
San Jose	3,000,000
Agnew (state hospital for insane)	400,000
Palo Alto (Stanford University)	4,000,000
Napa	250,000
Salinas	2,000,000
Hollister	200,000
Vallejo	40,000
Sacramento	25,000
Redwood City	30,000
Suisun	50,000
Santa Rosa	800,000
Watsonville	70,000
Monterey	25,000
Stockton	40,000
Brawley	100,000
Santa Cruz	150,000
Fort Bragg	100,000

The disaster precipitated an unparalleled crisis upon the fire insurance companies of the country, and they met it with wonderful courage and self-sacrifice. Succeeding several months of unusually heavy losses, it presented a sight draft upon them for more than $100,000,000—for they were liable for that enormous sum. The response was prompt, and in some cases heroic. The companies announced that they would pay their obligations in full, though this in some instances would drain the resources that had been built up in scores of years, and in others would wipe out all accumulations and force stockholders to assess themselves, often

to the full amount of their holdings. It meant sacrifice and self-denial for hundreds of men, and perhaps the mortgaging of homes, to meet these unexpected demands. But they were met with courage and fidelity.

The assurance that every loss would be paid was cheering news to the people of San Francisco who were yet retreating before the advancing flames when the welcome announcement was made.

Never before were the companies called upon to pay so enormous an amount in so short a time, but they rose to the emergency. They ceased to be mere financial machines, collecting premiums from the many to pay the loss of the few. They strove to relieve distress as rapidly as possible at great cost to themselves. Under their contracts they had sixty days in which to settle, but every company started men and money hurrying across the continent in a generous race to be the first to pay. They alone stood between thousands of persons and utter ruin. They knew it, and so they paid, and said no word of what it cost them.

Many millions of money came from Great Britain and the European continent, for the San Francisco risks held by foreign companies were large and numerous. These concerns cabled at once to their American representatives to pay all losses by draft on the home offices in order to leave the funds in the United States intact.

Californians themselves set a good example, for on the Saturday following the earthquake the San Francisco company that was hardest hit sent out the cheering word that its flag was nailed to the mast and that

all losses would be paid in full. It was a certainty that these losses would be far more than the surplus —they might even exhaust the assets—but whatever they were, the Californians stood r ady to meet them. Another company, in Chicago, wa- equally brave. It was only a year old and was just getting fairly started, when came the blow that would have been crushing to other than Chicago men. It started in at once to realize on its securities and pay its losses, and not a complaint was heard.

Many of the San Francisco bankers exercised both heroism and ingenuity to save the funds of their depositors. Some of the bankers and their employes were content to shut up the books and see that all the securities were in their deepest vaults. Others attempted to transport not only their books but also their coin.

One characteristic experience of a banker in saving all of the valuables of his house was that of William H. High, manager of the San Francisco branch of the International Banking Association, which has its headquarters at 60 Wall Street, New York. He was awakened by the earthquake in his home in Oakland, and immediately hurried over to San Francisco to size up the situation.

He was joined by all the other employes of the bank and, procuring a horse and wagon and with several soldiers as a guard, they removed $500,000 in gold to safe deposit vaults.

Only one bank of all those in the city escaped destruction, but their vaults preserved their treasure in most cases, and when the ruins cooled the gold and silver were found unharmed.

The United States mint was saved, as is told in another chapter, and the treasures of the government in the sub-treasury were preserved by the efforts of the head bookkeeper, J. M. McClure, though the building was burned to the ground.

Secretary of the Treasury Shaw was prompt to take steps for the assistance of the financial institutions. He ordered that $15,000,000 be distributed among the national banks of San Francisco and vicinity as soon as security for the deposits was placed in the hands of the government officials at the sub-treasuries throughout the country. Securities owned by the California banks and on deposit in Chicago, New York, Boston, Philadelphia and elsewhere, were accepted up to 90 per cent of their value, and large transfers of cash were made.

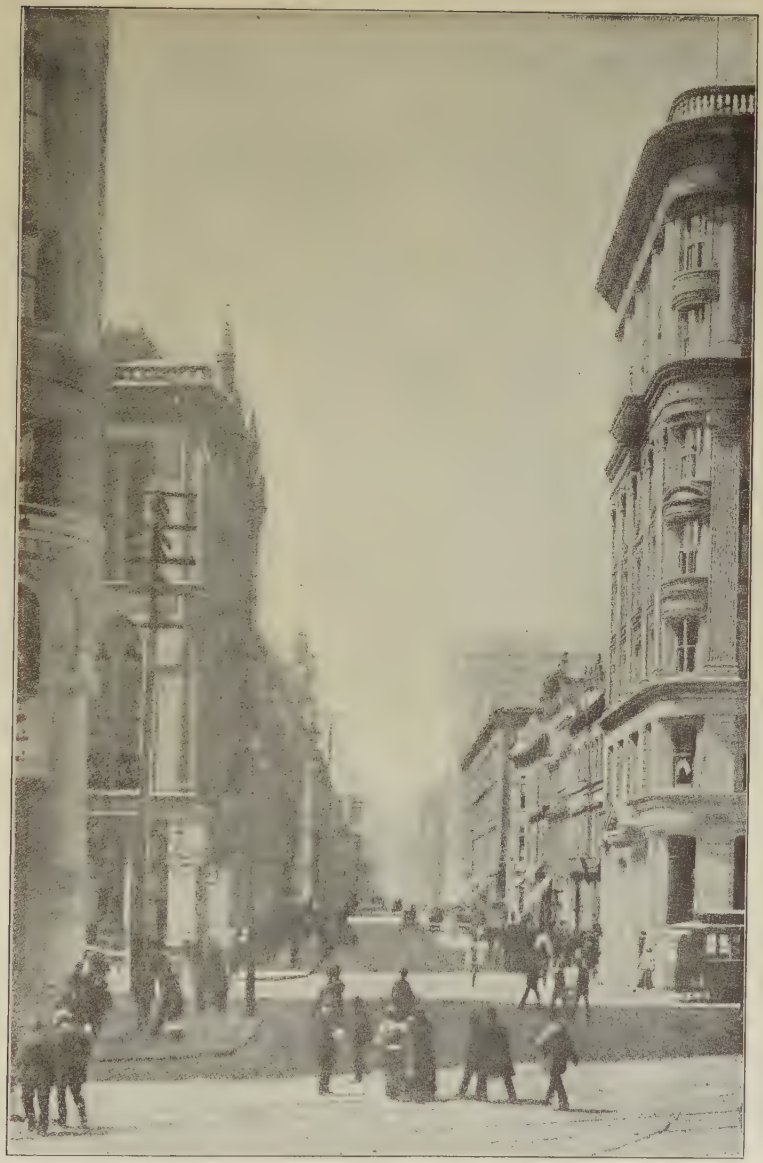
These measures made things comparatively easy for those who had savings and deposits in the bank vaults that could not be reached for some days, but many thousands of others whose entire possessions were represented in little shops and household effects were left destitute.

Many names famous the world over appear in the list of those who suffered the severest property losses. Some of the heaviest investments in San Francisco real estate were as follows:

The James D. Phelan estate	$15,000,000
The William H. Crocker estate	12,000,000
M. H. De Young	5,000,000
The Spreckels estate	8,000,000
Mrs. Herman Oelrichs	3,000,000
Mrs. William K. Vanderbilt, Jr	4,000,000

The Hearst estate	$ 2,000,000
D. O. Mills	8,000,000
The Schloss estate	5,000,000
Dr. Herbert Law and brother	5,000,000
The Sharon estate	5,000,000
The Lloyd Tevis estate	5,000,000
Mrs. Eleanor Martin	1,500,000
The Flood estate	7,000,000
The Lunning estate	4,000,000
Cunningham, Curtis and Welsh	3,000,000
The A. P. Hotaling estate	5,000,000

Many of the wealthy citizens and big financial institutions of the city were heavily interested in the bonds of the Spring Valley Water Company, which supplied San Francisco with water. Something like $10,000,000 of the bonds are said to be held by financial institutions alone.



MONTGOMERY STREET.
One of the principal business streets. You can see "Old Glory" flying over the Custom House.

CITY HALL—SAN FRANCISCO.

The most costly municipal building in the World. $7,000,000 and years of toil were spent in erecting this magnificent structure, which was leveled in a few seconds by the earthquake. Only the steel tower remained standing.

CHAPTER XVI

THE RISE OF A NEW CITY

Rebuilding of San Francisco Assured Before Its Ashes Are Cool—Indomitable Spirit of Pioneers Arises to Meet the Crisis—Quick Revival of Hope and Confidence—Reconstructed City Will Be Handsomer and Safer Than the Old—Architect Burnham's Plans for Magnificent Metropolis Adopted—Beautiful Boulevards and Parks.

Long before the ashes of San Francisco had grown cool, its indomitable citizens, penniless, homeless, without food, drink or clothing, gave assurance to the world that their once proud city would be rebuilt. The sturdy spirit of the pioneers, that never balked at an obstacle, however insurmountable it might seem, was recalled to life. Hope and confidence revived in the hearts of those men who had just seen their entire fortunes wiped out. They knew their ill-fated city could not be dead forever—they determined that it should not be.

Plans for rebuilding the great commercial piles in the business district were being made almost before the conflagration had spent its force in the outskirts of the city. The task confronting the citizens was tremendous, but it did not appall them.

That a people who have had such a terrible example of the dangerous character of the forces pent up under-

neath them should rebuild their homes and continue to live there seems at first glance inexplicable, yet it was beyond question that San Francisco would arise from its ruins, even as Chicago, Galveston and Baltimore have done. In part, of course, this is due to the fact that the commercial conditions and the fine harbor facilities which established the city on its present site remain unchanged. It is splendidly situated to be the western seaport of the nation, and with the opening of the orient and the completion of the isthmian canal its opportunities for further growth will be greatly increased. The "building boom" due to reconstructive work itself will tend to draw labor and capital to the place and cause great activity.

In 1904 a number of enterprising citizens formed the Association for the Improvement and Adornment of San Francisco and requested Daniel H. Burnham, a distinguished architect of Chicago, to draw up plans for the beautifying of the city. Mr. Burnham gave more than a year to his task and then submitted a scheme that embodied the best lessons of man's experience in both the art and science of city-making. These plans, which were accepted by Mayor Schmitz in September, 1905, now had a clear field, all existing obstacles having been swept away by the earthquake and fire. Built on such lines, the new San Francisco will rival Paris, Vienna and Berlin in beauty.

In accordance with the Burnham plan, the boulevard system of Paris is taken as a general model, and the whole scheme was outlined as follows, a few days after the disaster:

A great encircling boulevard, giving access to all

centers of the city without the necessity of passing through the congested districts, is the main feature of the plan. San Francisco is built on a peninsula, with water on three sides. It is planned to make the engirdling boulevard a broad, dignified, and continuous driveway, skirting the water's edge.

Within this ring it is planned to have a number of smaller concentric rings, separated by boulevards. The smallest of these rings, inclosing the civic center —that part of the city which plays the most important part in civic life—is located at or near the geographical center. The shape of the rings necessarily must be so made as to conform to the shape of the city.

From the inner circuit boulevard diagonal arteries are to be run to every section of the city and to the surrounding country. They are to traverse in succession the diminishing circuit boulevards and finally reach the center or group of centers, thus forming continuous streets reaching from one side of the city to the other.

In a city as large as San Francisco no one central place will be adequate for the grouping of all the public buildings. Therefore it will be necessary to locate subcenters at intersections of the radial streets with the concentric boulevards. At each of these intersections there will be a public "place."

Once the western section of the city has been built up, the only opening for further development beyond the present boundaries will be toward the south. As far as land communication goes there are only three routes to the southern country and the circulation of

supplies from the city to the suburbs and country beyond.

It is intended to make the proposed Mission Boulevard and its continuation, the Camino Real, the backbone of the system. It has been proposed to build it on dimensions corresponding to its future importance.

The civic center is intended to be one of administration, amusement, and education of the finer order. With the subcenters, the distribution of groups of buildings will be as follows:

The civic center is to contain the City Hall, Court of Justice, Custom House, Appraisers' Building, State Building, Government Building, and Postoffice.

Plans have been made for another group of buildings, public or private, of monumental character and of great civic interest relating to matters literary, musical, expositional, professional, and religious. Some of these probably will be the Library, Opera House, Concert Hall, Municipal Theater, Academy of Art, Technical and Industrial School, Museum of Art, Museum of Natural History, Academy of Music, Exhibition Hall, and Assembly Hall.

It has been planned that these buildings, placed in economic relation, shall face on the avenue forming the perimeter of distribution, and on the radial arteries within, particularly on public places formed by their intersection. The plans include extensive settings on all sides, contributing to public rest and recreation, and adapted to fetes, celebrations, etc. It has been considered that by being removed from the rush of business activity these buildings will gain in repose

and strengthen the public's sensibility of the dignity and responsibility of citizenship.

On the chief radial line to this place will be placed the Union Railway Station, forming a vestibule to the heart of the city. It is intended that theaters and other places of amusement shall be grouped on some one large street near the center, with plenty of room for vehicles coming and going.

The water front and available level ground govern the location and growth of the working portion of a maritime city. The docks, wharves, and freight houses naturally group on the water front.

The originators of the plan intend that the water front district shall be so arranged as to admit of indefinite expansion and connected with a complete system of warehouses—served on one hand by railroad tracks or canals and on the other by broad roadways. It is planned to have the warehouse system so schemed as to connect as directly as possible with the wholesale trade districts and the manufacturing quarter. The retail quarter is to follow within easy reach. This district follows in general, in its growth, the residential districts which it serves, limited by the steeper grades of the contours.

Ten miles of water front possessed by San Francisco, it is declared by architects, will be inadequate to the needs of the future. Although there is nothing to check its expansion down the eastern bay shore, the value of the frontage decreases in ratio to the distance of its removal from the center of the city. It is therefore considered necessary to develop as much as possible of the water front extending from the ferries to

Hunter's Point. A system of docks, inclosed by a sea wall, may be used to triple, or even quadruple the extent of wharfage.

Where the outer boulevard follows the sea wall it will be necessary to connect it with that section of the city lying near it and inhabited by the middle classes.

Where the streets from this section intersect the great boulevard, there probably will be piers for public recreation, a yacht and boat harbor, and vast bathing beaches, both inclosed and open air. The outer boulevard arranges for this without interfering with provisions made for shipping.

Rapid underground transit and a traffic tunnel through Ashbury Heights are other features of the plan. It is proposed that the main diagonal arteries of the city shall be provided with underground transportation and that underground loops shall be excavated under the centers. The plan includes the construction of at least two underground roads at right angles. Where steep grades and contour roadways extending around hills are encountered it is suggested that the subway might be built as a gallery below the roadway, opening to the view, or the car line built on the slope slightly below the roadway.

The financial center is to comprise banks, exchanges, insurance buildings, and general office structures. It is planned to have it easily accessible from the wholesale and retail quarters and also from the administrative center. It may be a financial forum, from the center of which it may be practicable to exclude vehicles.

In the form of a court or series of courts it probably

will be fronted with the most frequented and important institutions. The new city has been so planned as to make it one of the easiest cities in the world "to get around in."

The park systems, the adornment of the streets by the planting of trees, the uniform height of buildings on specified streets, the putting up of statues and works of art in public places, the prevention of smoke, and the substitution of chains of park squares for unused back yards—all these things enter into the tentative plans that were made for the rebuilding of San Francisco before anybody realized that it would be necessary to rebuild it. It was planned to make the park chains beautiful examples of the art of the landscape gardener where people might walk with comfort and where children could play free from danger of traffic.

It has been suggested that cities like Colma, Ocean View, and Baden, which probably will become borough centers, reserve large commons on which the civic buildings may face.

There are many steep hills in San Francisco. In some places the streets were laid out at right angles with apparent disregard for the configuration of the landscape. In the Burnham plan it is suggested that each hill, or succession of hills, be circumscribed at its base with a circuit road. These circuits are to be repeated at various heights and connected by easy inclines. Places of interest are to be emphasized by terraces and approaches.

It has been recommended that an art commission be given charge of all matters especially pertaining to civic art. Such a commission would have supervision

over electric and gas lamps, post boxes, fire alarm boxes, safety stations, street name plates, electric signs (none with intermittent lights to be tolerated), shop fronts, and signs and billboards.

Mr. Burnham proposed that the water supply be ultimately obtained from the Sierras, and that the reservoirs should be so designed as to add to the beauty. By placing the reservoirs at successive heights the water could fall from one level to another, thus presenting a series of waterfalls.

The systematic work of clearing up the ruins was begun with vigor within a week after the earthquake. Even earlier, men were clambering about the masses of brick and steel where great structures had stood, planning and devising for rebuilding. Mayor Schmitz reflected the spirit of the people in a telegram he sent to President Roosevelt April 20, acknowledging the generosity of Congress in making an appropriation of $1,000,000 for the city's relief. He proclaimed to the world that the work of rebuilding would begin as soon as the fire ceased, and that the city would provide capital for the reconstruction of its public buildings and its water system. He also expressed the hope that the government would provide ample appropriations for the rebuilding of the federal structures destroyed. That this hope was well founded was proved by the promises of high government officials and leaders in Congress. Indeed, Senator Scott of California already had asked immediate consideration of a resolution calling upon the Secretary of the Treasury to prepare an estimate of the cost of replacing the ruined federal buildings. Soon after a measure was intro-

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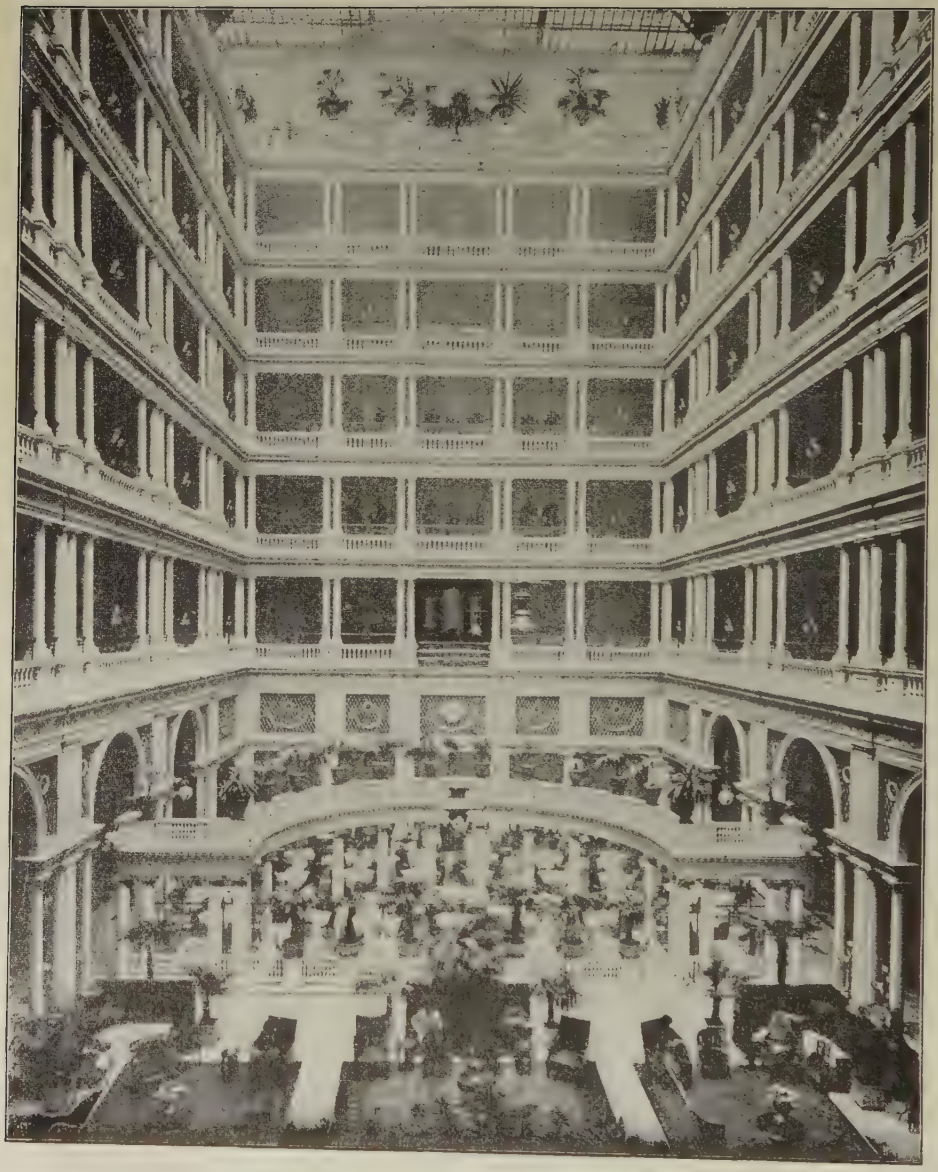
CROCKER BUILDING—WRECKED BY EARTHQUAKE AND CONSUMED BY FIRE.



THE COURT AND PALM GARDENS—PALACE HOTEL.
One of the points of interest in the Paris of America (San Francisco) was the famous Palm Gardens of the Palace Hotel.

CLIFF HOUSE AND SEAL ROCKS, SAN FRANCISCO.

A famous pleasure resort where distinguished travelers of the world have dined. The people of San Francisco and towns nearby made this picturesque spot a constant recreation ground. Seals sun themselves all day on the rocks and sport in the water.

THE FERRY BUILDING.
Thousands flocked to this structure for shelter and escaped to Oakland. Its tower was damaged.

duced in Congress providing that steel and other building materials for San Francisco should be admitted to the country free of duty.

Across the bay in Oakland public officials, representatives of large commercial enterprises, architects and construction companies opened offices where plans were made and thousands of men employed for the work of rebuilding. Mayor Schmitz sent out a general call over the country for architects and mechanical draughtsmen, and hundreds responded.

Meanwhile the heads of railway and telegraph companies put forth mighty efforts to rehabilitate their lines in the shortest possible time.

The great lesson of the earthquake was to build in steel, for the buildings of modern construction demonstrated their superiority over all others when the shock came. The only damage done to them, until the flames attacked them, was the falling of part of the walls that are built on to the steel work.

Fears that there would be a great scarcity of steel for the rebuilding of San Francisco were allayed by assurances of experts to the contrary. On this topic the Iron Age said:

"The San Francisco disaster has had a disturbing effect upon the broader minded leaders of the iron industry who are concerned chiefly with its influence upon the general financial situation.

"The splendid vindication of the modern steel cage construction is exceedingly gratifying, but some erroneous and exaggerated statements have gained currency as to the tonnage of shapes which will be required at once. Data collected by the highest authority shows

that up to date from the time of the fire Baltimore has used 30,000 tons of steel for the reconstruction of the burned area.

"It always takes time to rebuild, and the somewhat hysterical fears that the mills of this country, busy as they are now, could not cover the demand are utterly unjustified. The quantity will not be large, relatively speaking, and the deliveries needed will be spread over so long a time that the work will make only a passing impression upon the structural mills.

"Those who believe that the Pacific coast disaster will mean a boom to the steel industry are as much mistaken as are those who hold that our own works cannot take care of the business when offered."

April 26, Richard Fairchild, staff correspondent of the Chicago Record-Herald, wrote as follows:

"Confidence in San Francisco is unshaken. With the ruins of its great retail and wholesale buildings still smoking, plans are afoot for their reconstruction.

"San Francisco rebuilt is to be a better, a safer and a more comfortable city for business and residential purposes than it was before. Capital in abundance to work the miracle is at hand. Chicago and New York financiers are ready with it. The Harrimans, the Stillmans, the Rockefellers and Morgans of the financial world are anxious to expedite the work. It is to their benefit to do so.

"All signs conclusively prove that the credit of the Golden City is unimpaired. Its natural advantages remain, and its future promises to bring as bountiful prosperity as did its past. The trend is toward a municipality of steel and brick, of edifices constructed

along the latest approved eastern lines. The new city will be far more substantial than the old—this is certain. The dominant note here is optimism.

"It has become obvious within the last few days that instead of shrinking, real estate values have risen rapidly and will continue to rise. Fancy figures are being quoted on sites suitable for business establishments. Structures that remain comparatively intact and are not far from the old business section are being leased, room by room, at extremely high rates. Everyone seems feverishly anxious to outdo everyone else in reaching old customers first.

"Instead of dooming San Francisco, the double attack of fire and quake will prove a blessing. Unaccountable as it may be to many people in eastern states, the denizens of this part of the country have no especial fears of a recurrence of the recent catastrophe. They argue that seismic disturbances of such intensity come once in fifty or one hundred years.

"'Next time we will be prepared,' is the regulation comment. The faith of these people, their courage and their enduring hope have obliterated all doubt and crushed timidity. The watchword from the day of the disaster was 'rebuild.' And generally there has been added the injunction, 'and make it earthquake proof.'

"The contracts to construct large buildings already have been let. All the old landmarks are to be replaced by even more attractive creations of the architect's skill. The question now agitating the minds of property owners concerns the type of buildings to be selected.

"While flames did nine-tenths of the damage eight days ago, the titanic tremor leveled scores of great piles of brick and masonry. If these structures had been able to defy earthquake there would not have been much loss from fire. It was crossed wires, caused by crumbling walls, that converted the city into a furnace.

"The tall structures fashioned in the modern way withstood the shock best. Buildings with brick walls tied to a steel frame seemed invulnerable. The local theory of building, by the same token, was demonstrated deficient. Walls that were not securely attached to their frames fell out or crumbled into heaps. The Claus Spreckels Building, in which the San Francisco Call was published, is intact. It was built after the plan of the First National Bank Building in Chicago or the Flatiron in New York. Its neighbors, constructed by the San Francisco method, are on the ground. Many foundations were too light. Some were nothing more than piles driven into the ground. In the new San Francisco considerable attention is to be paid to sub-construction work.

"This is regarded as highly important, as the section west of Montgomery and First Streets is made land. Not many years ago the waters of the bay covered it. In company with a competent consulting engineer I made the rounds of the down-town district to-day and, according to my guide, the New York and Chicago methods of skyscraper construction have been fully vindicated by conditions here.

"Before the earthquake the district south of Market Street, especially toward the water front, was given

over to frame tenements of the cheapest class, and for years had been inaccessible on that account to wholesale houses and factories, for which it was a natural location. There is supposed to be little doubt that the fire limits will be extended and that nothing but buildings of high character can be erected in this district, thereby not only insuring the city against danger of another holocaust, but opening a greatly needed wholesale and manufacturing section.

"The San Francisco Real Estate Exchange fully realizes the importance of this change, and steps already have been taken toward establishing new fire lines.

"The interest being taken in the reconstruction of the city is evident on every hand. The newspapers are filled with advertisements of railroads and contractors offering advice and aid—incidentally bids for business—to firms that expect to rebuild. One of the contracting firms advertised in a local paper as follows to-day:

"'Personal examination has fortified our unshaken confidence in the stability of the best type of class A construction, and when capitalists have confirmed this conclusion from reports of their own experts we expect that the business district of San Francisco will be rebuilt with speed.

"'If it is correct that earthquake conditions can be provided for safely in tall buildings, then our first-class fire risks will be practically eliminated, since all business will be only one type and no one will have an adjacent exposure.'

"In ordinary English, then, the big contractors, who

know whereof they speak, look for the rebuilt city to be almost a fac simile of Chicago within the loop, or New York in the vicinity of Twenty-third and Broadway."

Before the ruins of the city were cold the leading minds of San Francisco were busy with plans to get sufficient money at once to rebuild the city as a whole. If this could be done the experiment of laying out a metropolis from one architectural plan, as single buildings are laid out, could be tried. The experiment had a fascination from the supreme difficulties that presented themselves. The scheme, if successful, would give San Francisco a prestige not enjoyed by any other city in the world.

Herbert Law, a San Francisco capitalist, was among the first to advocate this plan. He was possessed of the idea and succeeded in enlisting others in the attempt. The result was that on April 26th, one week after the earthquake, he was on his way to Washington to ask Congress to appropriate $100,000,000 to rebuild San Francisco. The money was to be loaned on real estate security for twenty-five years at 2 per cent per annum. The project met with favor from the President and a bill was prepared looking to the consummation of this colossal government loan.

Meanwhile individual property owners went to work to rebuild their property. The first building permit applied for and granted was for a twelve-story steel structure, to be erected by Thomas McGee, a substantial business man. Work on the great Fairmount Hotel, at California and Powell Streets, was resumed. The building was in course of construction at the time

of the disaster and would have been completed by November 1st. Only the woodwork was destroyed, the walls remaining in good shape.

Mrs. Hermann Oelrichs of New York began at once to repair the Rialto Building and to build again on the site of the Crossley. She and her sister, Mrs. W. K. Vanderbilt, Jr., also commenced to plan the construction of modern office buildings on their Montgomery Street site.

The Emporium, a large department store, resumed business on a large scale in a temporary structure at the corner of Post and Van Ness Avenue.

In two weeks seven floors of the new Monadnock Building which was in course of construction at the time of the disaster were filled with offices.

"Capitalists are not in the least dismayed or disheartened," said James D. Phelan, chairman of the finance committee, and multi-millionaire. "Before the earthquake I was asked by certain capitalists to erect a large hotel on the site of the Phelan Building at Market and O'Farrell Streets. Since the disaster the proposition has been repeated and even urged. This shows most decidedly that there is no lack of faith in the future of the city."

Talk was all of the greater plans for rebuilding the city. Whether the Burnham plans were accepted or not, the junction of Hayes, Market and Eighth Streets, and Van Ness Avenue, where stand the ruins of the City Hall, was to be made the civic center of the town, the place of the public buildings.

The expensive steel structure buildings on Market Street which stood the fire would not have to be re-

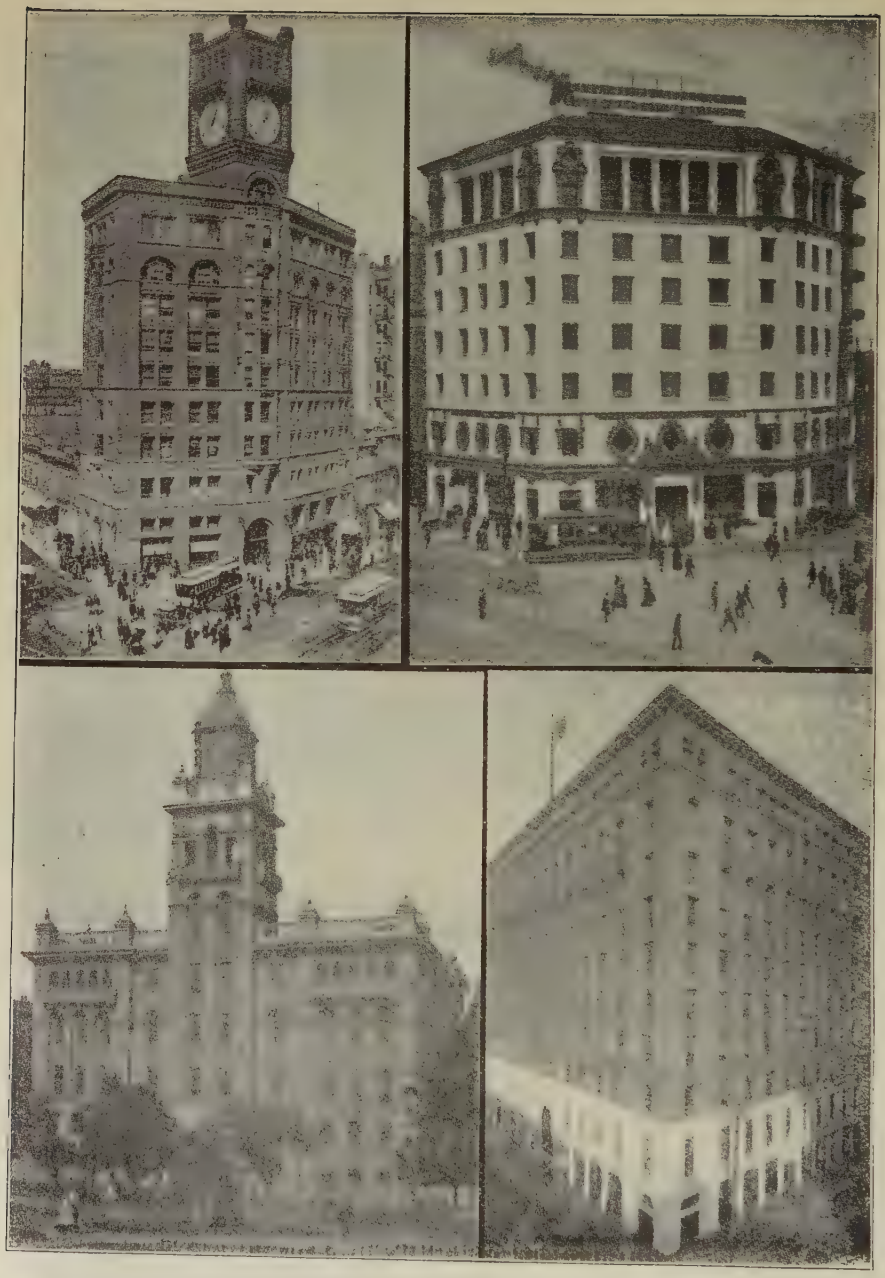
built. Other streets of the downtown district which were laid out in the early days and which are far too narrow for a modern city were to be widened by shaving off several feet from the property on either side.

The Burnham plans, if adopted, would change the course of a great many street, and it was felt that Mr. Burnham would have to cut his coat to fit his cloth; for in the present state of affairs it would be a great hardship to tear down and move buildings which escaped the fire. Mr. Burnham's pride was the terracing of the western addition; but the western addition stood untouched.

With wonderful pluck, the big newspapers of San Francisco refused to suspend publication, though burned out of house and home on the first day. The day after the earthquake the Call, the Examiner and the Chronicle forces combined to issue a small sheet, much like a handbill, from an Oakland newspaper office. By the next day each had obtained facilities for publication in Oakland, the forces separated again and the papers were issued thenceforth without interruption. One evening paper suspended publication for a week. Prompt steps were taken by the proprietors of these journals to erect new buildings, install new plants and resume the issuance of their papers in San Francisco.

The way in which shattered, scorched San Francisco shook off her ashes and debris and set about the mighty task of building a new city, greater and grander than the old, was a most inspiring example of American pluck and courage.

THE UNITED STATES MINT.
This building, whose vaults contained $39,000,000 in gold and silver, escaped the shock and flames.



FOUR FINE BUILDINGS WRECKED.
The Chronicle and Examiner Newspaper Buildings, the Hall of Justice and the Mills Building.

CHAPTER XVII

GREAT THEATRICAL BENEFITS

Unparalleled Performance Given in the Bernhardt Tent in Chicago—Mighty Concourse of Stage Stars, including Bernhardt, Willard, Sothern and Julia Marlowe—Thousands under Canvas—Actors' Fund Benefit Given for San Francisco Sufferers—Countless Performances all Over the Country Swell the Monster Relief Fund.

Unparalleled catastrophes must be met by unequaled measures of relief. When the news of San Francisco's awful disaster reached the world, it remained for Chicago and the actors and stage managers there to arrange and give the most stupendous theatrical benefit performance ever known. The plan was first suggested by Andrew M. Lawrence, publisher of the Chicago Examiner and chairman of the Chicago general relief committee, and was taken up with the utmost enthusiasm.

Mme. Sarah Bernhardt offered the use of the great tent in which she had appeared in Texas, and promised to go on the programme. It was decided to give the show Thursday afternoon, April 26, on the Lake Front and the Illinois Legislature and South Park Board of Chicago promptly adopted measures allowing the use of that park.

Hundreds of offers were made to contribute to the support of the undertaking.

The Chicago Federation of Musicians, through its executive officers and President Winkler, offered the services of a brass band of 500 musicians. Arrangements were completed to make this one of the great features of the monster performance.

Charles Frohman cabled from London his permission for E. H. Sothern and Julia Marlowe to appear in the tent, and every theatrical manager in the city offered the attraction then in his house. Richard Carle and "The Mayor of Tokio" company agreed to come from South Bend, Ind., and assist.

W. F. Connor, manager for Mme. Bernhardt, was made the general director.

George W. Lederer, manager of the Colonial Theater, was chosen to act as stage manager of the performance. Mr. Lederer is one of the greatest stage managers in the business and the performance was then assured of being properly balanced and well conducted.

Sam P. Gerson, manager of the Garrick Theater, was chosen as treasurer of the fund, and orders for seats began immediately to pour in.

George S. Wood of the Colonial Theater volunteered to handle the publicity department, and within twelve hours the entire city was informed of the benefit performance.

A. Jacobs, manager of the Olympic, was made house manager, and C. E. Kohl director.

Head Usher Cook of the Garrick Theater managed

the corps of volunteer ushers from the play houses in the city.

Much credit is due to the Chicago & Alton Railroad which, through General Passenger Agent George Charlton and City Passenger Agent H. H. Hilbourne, arranged to bring the Bernhardt tent from Dallas, Texas, free of charge. The railroad also contributed $500 toward the souvenir programme and donated special trains to bring Mme. Bernhardt from Indianapolis and take her thence to Peoria.

The souvenir programme was put in the hands of the Ben Leven Advertising Agency. Fifteen business men volunteered their services in obtaining advertisements and the allotted space was filled in a short time.

Stage hands, bill posters and house attaches assisted in the good cause and the tickets and advertising lithographs were never more quickly printed and placed in the proper hands.

The Chicago Edison Company furnished free of all charge all the lighting that was necessary in connection with this benefit.

The Theatrical Stage Employes' International Alliance, through Lee Hart, President of Local No. 2, gave the services free of charge of all the electricians, stage hands, carpenters and other assistants needed to run the stage.

The John Gillespie Lumber Company gave free all the lumber that was needed in properly arranging the tent and further saw that it was properly hauled and cut into proper sizes.

The United States Tent and Awning Company gave free all the extra tent seats and lights and everything

else they had in their Chicago, St. Louis or Sioux City storehouses which could in any way be of assistance in assuring the comfort of the patrons at the tent benefit.

Every piece of advertising put out was contributed by the Winterburn Show Printing Company, the National Printing and Engraving Company and the Central Printing and Engraving Company.

It was posted free by the American Bill Posting Company, whose force was superintended by J. T. McArty, chief advertising agent of the Garrick Theater.

He and A. L. Lamphear, the master carpenter, and T. J. Cleland, of that theater, volunteered their services and enlisted a large number of employes of other theaters to help them.

For days the newspapers of Chicago carried free large advertisements of the benefit.

The big Bernhardt tent itself proved to be one of the best features of the show. It seats 6,500 persons. As soon as the Alton Railway had brought it from Texas, Ben Rosenthal, assisted by a gang of canvas men whose services for two days were donated by Ringling Brothers, erected it on the Lake Front opposite the Auditorium Hotel. The Knickerbocker Ice Company furnished two new wagons that were used as ticket offices and the Postal Telegraph Company established a telegraph office in the tent.

The sale of flowers, programmes, candies and photographs was put in charge of Miss Helen F. Hahn, who was assisted by more than fifty prominent young women of the stage and of Chicago society.

At 10:30 o'clock on the day of the benefit the band

of 500 pieces began a concert on the Lake Front that lasted until noon. Meanwhile the tent filled rapidly.

Could the people of San Francisco have seen Lake Front Park at noon they would have understood something of the real sympathy that was felt for them in Chicago.

What a glorious picture it was. Buildings, viaduct, boulevard and park a mass of humanity, quiet and sympathetic. There was not an ill-natured person among all those thousands. It was more like a religious service than an amusement. One great family gathered to assist and comfort and soothe a wounded member of the household could not have been more universal in their feelings and deportment.

The great heart of nature stirred in every breast when the magnificent band of hundreds of instruments burst forth in "The Marsellaise" as the President of the United States, away off in Washington, touched the button that unfurled the colors of France and America above the tent, and Mme. Bernhardt appeared upon the stage to voice her sympathy and love. There was no individual any longer in all that packed assembly. They were all one in the thought of doing good.

Nature rejoiced with the people. The sun shone bright and clear. The breeze was gentle. Beyond the park, Lake Michigan rippled and smiled its approval of the generous demonstration. The vehicles that usually spin along the boulevard, their occupants self-engrossed with their own thoughts, went softly, quietly on that day. The tooting horns of the automobiles were still. Even the high-stepping horses seemed

to feel the spirit of gentleness and put down their steel-shod feet with an unusual lightness.

And the large sum realized from the sale of tickets and programmes was not to be compared to the sum that would follow it because of the day's grateful action. Not one of all those thousands that stood for hours without the tent, feeling the effect of that grateful spirit born of the hour, but must have been inspired to greater acts of charity than he had before dreamed of.

Harmony—that is the word. The actors on the stage felt it. The people packed within the great tent felt it. The many times greater crowd outside that applauded the faintest note of speech or song that came to it felt it. The people crowding the windows and doorways along the thoroughfare felt it. The people on the roofs of the Auditorium and other near-by buildings felt it. It was an hour of unison.

The cause was worthy of the idea, and the unanimity with which the artists, managers and generous-hearted men and women gave their whole soul to the enterprise was an earnest of its success. But even the most enthusiastic of its promoters could not have dreamed of the triumph it proved to be.

When E. S. Willard, like an enthused lion, recited those magnificent lines of Tennyson, "The Light Brigade," his whole soul seemed to be in the lines. It was the spirit of the hour he was voicing. It was the expression of the hardly recognized understanding of the audience that as this great enterprise had succeeded so would that greater one of rebuilding San Francisco succeed. Not because of its own strength,

but because the strength of the heartbeats of the whole country was with it, and seconding it, and will be until it again stands a beautiful city.

The Bernhardt tent had seen a glorious triumph. It had accomplished a noble work. Henceforth its name will be an inspiration toward everything that is high and pure and tender and true.

Just as the clocks struck 12 President Roosevelt, sitting at his desk in the White House, touched a telegraph key and started a great electric gong ringing in the tent. At the same instant a cannon boomed outside and the monster benefit was opened.

Mr. Lederer then read this message from the President:

"I send greetings to the managers and best wishes for the success of the benefit performance for the relief of the San Francisco sufferers.

"THEODORE ROOSEVELT."

Meanwhile Mme. Bernhardt had entered the tent and as she appeared on the stage the vast audience arose and cheered for several minutes.

Bernhardt recited a poem by Victor Hugo and then addressed the audience in French as follows:

"The calamity which has struck San Francisco has had an echo in the hearts of the people of the entire world. But those who, like myself, have had the joy of visiting that admirable city have the feeling of a yet deeper sorrow. Nevertheless, as evil brings with itself some good, I, who know the great American nation, think that like the phoenix, San Francisco will

rise again from the ashes greater, more beautiful and stronger against the furore of the elements.

"The public of Chicago, to whom I owe so much happiness and to whom I am so much indebted, has once more proved its kindness to me by coming under my tent to bring its share of offerings, thus allowing me to take a very small part in that brotherly impulse of the United States toward her unfortunate sister."

Then followed, rapidly and smoothly, the other numbers on the long programme. Cecil Lean and Florence Holbrook with the La Salle Theater Chorus sang some songs; Robert Hunter's Company from the Grand Opera House gave an act from "Before and After"; Elizabeth Wall sang "Chicago Says I Will"; Richard Carle and Adele Rowland gave a selection from "The Mayor of Tokio"; Mr. and Mrs. H. L. Waterous sang several selections; the first act of "Mrs. Wiggs of the Cabbage Patch," from McVicker's Theater, was given; Buster Brown and his dog Tige appeared from the Great Northern Theater, and then E. H. Sothern and Julia Marlowe, playing at the Illinois, gave the second act from "The Taming of the Shrew," to be followed by Trixie Friganza, from the Chicago Opera House, in songs. Then E. S. Willard, playing at the Colonial, appeared and stirred the audience by his spirited delivery of "The Charge of the Light Brigade." He was succeeded by La Petite Adelaide, the little dancer of the "Three Graces" Company, and next T. A. O'Shaughnessy, artist, made some rapid sketches. Robert Loraine and his company and automobile, from Powers' Theater played one act from "Man and Superman," and then Adelaide Keim of the

Bush Temple made a brief appearance. Louis Harrison of "Mexicana," from the Garrick Theater sang several songs and "The College Widow" Company from the Studebaker appeared for one act. The programme ended with a solo by Miss Caro Roma of the "Mexicana" Company. The numbers had been interspersed with music by an excellent orchestra, one of the selections being "The Yankee Hustler," a march composed by Mayor Schmitz of San Francisco.

The audience dispersed slowly and bought countless souvenirs. One man paid $61 for a box of cigars, another $18 for four boxes of cracker-jack. A third paid $105 for a table cover donated by Mabel Barrison and bearing the autographs of all who had appeared on the stage. Chorus girls invaded the Michigan Boulevard hotels and State Street department stores and soon disposed of the rest of their programmes and photographs.

The total receipts from the benefit, all of which went to the relief fund, were $15,605.

After the performance, E. S. Willard said: "I acclaim the benefit performance the greatest bill I have ever been associated with. Chicago has established a new mark in philanthropy. I shall always remember this marvelous entertainment."

"I have been in benefits held in London, Paris and New York," said George W. Lederer, "but never have I witnessed one on a parity with that held on the Lake Front. Never before in my long theatrical career have I seen so successful an entertainment."

Mme. Bernhardt, weeping as she was driven hurriedly to a railway station, was too much overcome by

emotion to do more than offer to remain in Chicago yet longer if by so doing she could give further aid to the grand cause.

But the theatrical people of and in Chicago had not yet done enough for the cause of charity. The annual actors' fund benefit had been set for Friday afternoon, April 27th, in the Auditorium, and no sooner had the news of the California disaster been flashed over the wires than it was announced that the total receipts from this performance would be added to the fund for the San Francisco sufferers. The great theater was filled to its limit and the Theater Managers' Association provided a wonderful bill. It included E. S. Willard, E. H. Sothern and Julia Marlowe, Robert Loraine and Company, the "Before and After" Company, the "College Widow" Company, "Mexicana," "Mrs. Wiggs," "The Three Graces," "Buster Brown," "The Umpire," Adelaide Keim and Bush Temple players, the People's Stock Company and headliners from the Majestic, Olympic and Haymarket theaters. The orchestra, donated by the Chicago Federation of Musicians, was directed by F. Timponi.

Sunday, April 29th, the Thomas orchestra and Dwight Elmendorf combined to do their part by giving an entertainment in Orchestra Hall. A concert by the orchestra was followed by an illustrated travel-talk on San Francisco by Mr. Elmendorf. The sum of $1,289 was realized.

A few days later the Apollo Musical Club and the Thomas orchestra joined in a performance of Haydn's "The Creation," for the benefit of the relief fund.

For fear some willing to contribute should be over-

looked, Mayor Dunne of Chicago proclaimed Saturday, April 28th, "San Francisco Day" and ordered every policeman in the city to make a house to house canvass of his beat. Coupon receipts were given for sums ranging from 25 cents to $5 and when the returns were all in it was found that nearly $35,000 had been collected in this way. There were many pathetic instances of poor women giving the last bit of coin in the house and little children gladly contributing their mites. Indeed the children of the whole country gave a touching example of generosity, turning into the relief funds their pennies and nickels always with expressions of regret that they had not more to give.

In the way of theatrical benefits New York came to the front Sunday night, April 29th, with a most extraordinary performance in the Hippodrome. This immense amphitheatre was filled to the doors with people of wealth and fashion, Victor Herbert led an orchestra of 350 pieces, and on the stage appeared Mme. Schumann-Heink, Eugene Cowles, Miss Blanche Duffield and a grand chorus of 500 voices from the Fritzi Scheff Opera Company, the Free Lance Opera Company and the Hippodrome Company, besides a dozen noted vaudeville artists. As everything was contributed free, the relief fund was greatly swelled by the receipts.

While Chicago and New York gave the biggest benefit entertainments, others were given in nearly every city, town and village in all the broad land. There were base ball games, athletic contests, billiard tournaments, concerts, lectures and amateur entertainments without number. And the receipts from all of them

went to swell the mighty flood of gold that poured steadily westward to the ruined city of the Golden Gate.

On Sunday, April 30, most of the churches in the United States gave the whole of their loose collection to San Francisco. The sum thus raised was a generous one. Most of it was sent direct from the churches to their sister denominations so that a total of the receipts could not be estimated.

It was not charity but brotherly aid that poured into the distressed city of San Francisco such a stream of wealth and supplies. And America will ever be the better for this noble sacrifice.

CHAPTER XVIII

WHAT 'FRISCO HAS LOST

It Was a Group of Individuals But a Single Soul—Its Early Lack of Books Inspired a New Literature—Some Characteristics of the Old San Francisco—An Englishman's Experience With John Phoenix, the First American Humorist to Gain Fame—San Francisco Compared to Chicago—It Was a Forest of Arden That Must Now Become a Steel Metropolis.

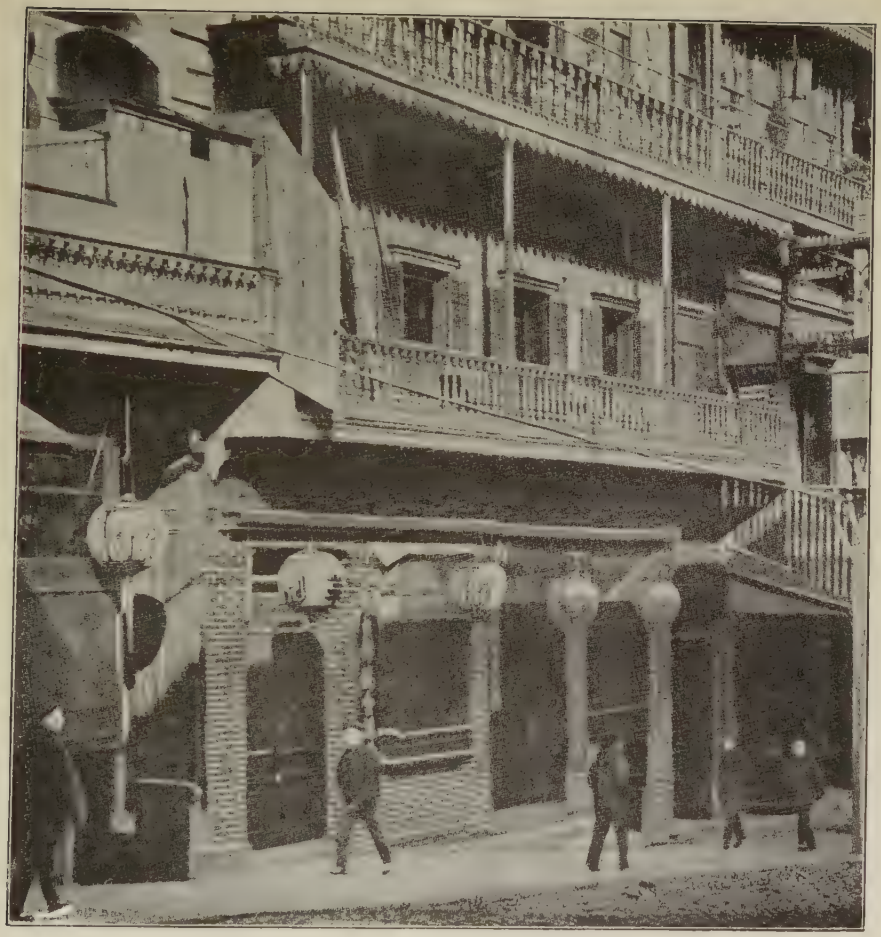
Think of all the forms, the peculiar combinations, the meeting, the mingling, the sifting of the myriad trails, down the arteries and along the nerves of time—culminating in the individual. Think of these forms, multiplied a million fold, the culmination a physical, geographical temperament, a character built upon the ground, a thousand gables but one atmosphere, a civic individual—a city soul. Cities are as whimsical as the children of men, governed by that same chance-law that gives to men their humors. A city built by design is almost as characterless and quite as careless as a language fashioned by a scholar in his library. Philadelphia is an old town but it has not "recovered" from the deadening regularity given to it by William Penn. The most interesting and the most picturesque of all thoroughfares was first marked out by the wild beast.

Europeans have accused American cities of a lack of individuality, but no world man ever charged San Francisco with a want of distinctiveness. It was laid out by those children of Chance, the miner, the poet and the grizzly bear. The tongue of land upon which it was built was a tongue speaking the languages of all nations. It was a town in which at first every man, American, European, Oriental, was a foreigner, and the way to bring men in close harmony is first to make them strangers. Semi-acquaintance establishes no close relationship—it nods, passes the polite time of day and moves on. Men from great distances became brothers. Therefore, San Francisco, a city of strangers, at an early day became a city of brothers. The common interest of commerce alone could not have brought this about; there was needed a touch of art, of literature—of poetry. It was the only city in America and one of the few of the world whose rude cradle was rocked by the muses. In the outfit of the forty-niner there were no books. And what did this mean; the birth of a new literature. The press of the east, with its temples throbbing from a night of debauch, could not spew out upon this distant place. And so, in this town there was nothing to read. Good. In that dearth of stale, academic print there lay the germ of a new page of letters, a beautiful bronze page, and upon it was the glow of a sunset that made a liquor-gold of that almost boundless brine which "stout Cortez" viewed and was "silent on a peak in Darien." Ah, trade alone not more makes a city great than flesh with nettle-rash makes a man a character. In early San Francisco men wrote in order that they

might read. They wrote for themselves, and the man who writes not for the public but for himself writes for all humanity. The only reward of real literature is the thrill of production. The materialist may say that this was merely an accident, and that at best but a small factor in the formation of San Francisco. But the psychologist will tell you that it gave the rich color to that wondrous civic painting which yesterday was shaken out of its golden frame and consumed by fire. It was the hand, which, striking hard with the pick, had touched delicately with the pen. It was the atmosphere that had come out of art, the dreamy vapor arising from the pool of sentiment. The surveyor came out, the town grew to prolific measure. It had its great pentameter thoroughfare and its little rhyming byways, its idyllic nooks, its vilanelle corners, its iragic cellars. And those must now live as they were born—in literature. They can never be reproduced. Every physical shape might be enacted by the architect, and yet the spirit would be different. The old soul was shaken out upon the air and has flown away. As a commercial aspect the new city may be more magnificent—it will be; there will be more steel, more windows, and, therefore, a greater glare of light, the dispeller of soft, dreamy mystery. Calamity's advertisement will increase the volume of her trade and Dun's book will give to her a higher rating, but the world wanderer who returns to her will look in sadness upon her new magnificence. Here was born a true Bohemia. It was not the drunken, glutton bout, the hot hand, the swollen eye—the inebriate's pretense of a love of art; it was art at ease, singing because its

heart was light. The lonely Parisian, banished in the newness of America, came thither and found himself at home. The Londoner, holding in contempt all towns save his own, lived in 'Frisco for a day, and muttered his astonishment. And the Broadway man, with his professional narrowness, bowed to the charm that came stealing through the Golden Gate. Can you infuse such a spirit into a great skeleton of steel?

It was not age alone that gave to San Francisco a strange, a subtle, a spiritual grace. Age; men are living who saw its birth, its growth—its death. It was the youngest of all the world cities, and yet in a way it was as old as Paris, as Athens. It seemed to have been born with poetic traditions. We may have seen its red shirt, but its wash tub was hidden. In the early day all California was a fairy land and San Francisco was its capital. And in this rich glow of gold and of sunset, a new spirit of mirth was born. Hither wandered a steamboat man and became the world's greatest humorist. And here, a meditative failure in the East wrote short stories that made his name familiar to all tongues. Here is an extract from a letter written in the fifties by an Englishman: "It was evening when I arrived in this strange town of San Francisco. I was alone when I arrived, but not for more than a few moments afterward. As soon as I had alighted from the stage coach a man came forward and said that as I looked lonesome he would tell me his real name if I wouldn't say anything about it. I was lonesome but I couldn't see what his real name might have to do with relieving the situation; and I so expressed myself to him, and he smiled sadly



A JOSS HOUSE—CHINATOWN.

No portion of the ill-fated City of San Francisco was so well known to travelers as the section known as Chinatown. The estimated number of Chinamen in this district before the fire was 45,000.

MECHANICS' PAVILION.

This building was turned into a hospital and morgue the first day of the disaster. The fire spread so rapidly that when the building was abandoned the occupants were rescued with the greatest difficulty.

and said that he didn't either, but that being an adventurous cuss he had fancied that it might do some good. He said that he was an undertaker and had come out from Boston on the promise of the mayor of San Francisco, who had assured him that business would be good. 'I told him,' said he, 'that the climate didn't seem flattering to an undertaker, and he said that the climate hadn't anything to do with it. Then he said that if I would agree to give him a rake off he would go out and stir up something.'" This man was exceedingly friendly, the writer continues, "and invited me to go to a ball with him that night. As there wasn't anything else to do, and especially as he seemed hurt when he saw that I was about to refuse, I consented to go. I can't say that the ball was a brilliant affair. The only lights were known as tallow dips. The floor was uneven. And I had no notion of attempting to dance; indeed, I had never danced even in England. Suddenly my melancholy friend came to me looking sadder than ever, and said that he had a most opportune piece of news to offer. I inquired the nature of it and especially as to why it was opportune, and pointing to an enormous fellow in a red shirt, and weighted down with pistols, he said: 'That's Bleer-Eyed Pete.' I told him I supposed it was, but what of it? He said that there was a great deal of it—that Pete had just sworn vengeance against me. I was at a loss as to why, but was soon enlightened. He said that I had insulted Bleer-Eyed Pete's sister. In astonishment I demanded to know how, and he said that I had not asked her to dance with me. 'And that is a deadly insult,' said he, 'still

there is time for reparation. He won't begin shooting before the next set. That's his sister standing over there against the wall. She isn't handsome, as you may discover, but still it may be better to dance with her than to die; and I say this against my interest, for I have just been elected city undertaker by a soothing majority. Go and ask her to dance with you.' By jove, I didn't want to die. I had prospects in England; so I went over to her and asked her to dance. She did, and we cut but a sorry figure, as I didn't know a thing about it; and the people all laughed, Bleer-Eyed Pete louder than the rest, which was most encouraging, as it assured me that I had been forgiven. I had no opportunity to talk to him. As he had more pistols than any one else he was most popular with the women. After the dance was over and when we had returned to the tavern, my melancholy friend congratulated me, saying that she would make me a good wife as she had buried three husbands and knew how to handle them. And you may be assured that my mouth was now wide open in astonishment. 'Why,' he said, 'she has told her brother that you have asked her to marry you. And now, sir, if you should shrewdly discover that she has lied, don't say anything about it, but quietly marry her to keep down trouble.' This was too much; and I was preparing to steal away from the town when I chanced to meet the mayor. I told him my trouble and he almost burst with laughter. My melancholy friend was John Phoenix, a celebrated American humorist."

The town was riotous with the spirit of levity.

Here dull men became enlivened with a new, a droll humor, a drawn-out wit. As the place became more civilized, as finally the old poets came in ships to mingle with the new, the rough life toned and softened; but it never became dull—never conventional. A great university did not swing it into the world's rhythm of the learned commonplace. San Francisco accepted culture and strengthened it with originality.

Boston lost its old literary flavor. In its atmosphere bloomed America's most fragrant flower—Emerson; but in the later day Harvard began to turn out critics rather than inventors. Old literary New York was abolished by the spirit of the gambling house of Wall street. Along Broadway there used to muse the poet—virile—where now there hastens the lean youth dramatist whose cuffs rattle on his thin wrists. Society had not made a boudoir of the magazine. Old Bonner printed trash, but he printed literature, too—a serial story by Dickens, a novel by Beecher; in the cellars where the toilers wrought there was more of impulse than technique and more of necessity than of either. But out of impulse there may come a Child Harold and out of necessity there did come a Rasselas. And out of technique there has come more technique. Some of this old spirit of New York found its way to San Francisco, and back to New York it sent its greeting and enriched her publications.

Chicago from the very start was chiefly—buy and sell. Commerce has ever regarded poetry as belonging to a bygone age. Chicago's aim was to build fast. By the fire she lost nothing. Her spirit was

the spirit of material progress, and that spirit was augmented. Out of the ashes it arose new, just as the material part of San Francisco will arise. Not in all Chicago was there a literary landmark. Those of her children who had the poetic instinct were always aliens. An older town than San Francisco, and yet the newest town in the world; and it might be burned a thousand times and arise better for each fiery bath. In Chicago insurance could cover everything.

Baltimore congratulates itself upon its new magnificence. About the old town there was no art, no literary distinction. Poe lived there, but the "respectable" citizens deplored that fact. In that atmosphere he could not do his best work, and it was in Washington that he wrote The Raven.

Yes, they will rebuild 'Frisco, and according to plans it will be a beautiful city—like a park; but was there ever a park that could be compared with the forest of Arden? The streets will be regular and there will be fountains—Cupid will hold aloft a fish to let it squirt water out of its mouth; and about the fountain there will be music, the new symphony of science and not the old melody of the heart. San Francisco dreamed a beautiful dream and awoke with a shock, amid fire and smoke. It cannot dream again. In material beauty it will surpass anything on this continent, in the world, perhaps, but it will be an adopted child.

CHAPTER XIX

EARLY HISTORY OF SAN FRANCISCO

First Settlement by Spanish Missionaries in the Year 1776—A Mission of Mercy—The Early Days of '49—Growth and Development of the Golden Gate—Literature and Art—Oriental Trade—Wonderful Development of Industries—Agricultural Period—Great Fruit Growing—Pre-eminent for Its Wines.

In that memorable year of 1776, when the hardy pioneers of the American colonies were declaring their right to liberty and the pursuit of happiness, San Francisco was settled. The first white men to make a permanent home on the bay which has since become one of the world's most famous harbors, were a small company of Spaniards led by two Spanish priests, Father Francisco Palou and Pedro Benito Cambon. They knew nothing of the momentous events going on three thousand miles to the east of them around the harbor of Boston. They were holy men, looking only for an opportunity to extend Spain's dominion in the new world through the influence of the Church. Spain had long been active in setting up missions on the southern shores of the North American continent, where brave and zealous Catholic fathers remained to labor for the conversion of Indian souls. To understand the motives which inspired the little band of zealots in wandering thus far into the unknown lands upon the

outer rim of the western world, and to learn their means of establishing themselves there, a swift backward glance is necessary.

In a charming little volume called "San Francisco and Thereabout," by Charles Keeler, is found the following delightful description of the adventures of those days:

"During those far away times when Protestant Elizabeth jealously watched the doings of Catholic Philip, a lonely galleon sailed once a year across the waste of the Pacific from the Philippine Islands to the Mexican port of Acapulco. It was laden with spice and the treasure of the Orient destined for Seville. English buccaneers lurked in the bays of the west coast of the Americas waiting to plunder the treasure ship, or, failing in capturing this prize, to loot the Spanish towns of Central and South America. Foremost of these daring pirates was Francis Drake, who followed up the coast of North America and passed San Francisco Harbor without discovering it. It was in the year 1579 that he landed in the bay which today bears his name and took possession of the territory, calling it New Albion, and holding there, before a wondering band of Indians, the first Protestant service on the Pacific shore. A stone cross has recently been erected in Golden Gate Park to commemorate this event.

"Even before this time, California had been named and its coast superficially inspected by the Spaniards. Cortez and the explorers in his service had sailed about the end of Lower California, which they supposed to be an island. They had read the popular romance,

Sergas of Esplandian, wherein is described a fabulous race of Amazons, decked in armor and precious gems, who lived on an island to the right of the Indies, and half hoping no doubt to prove the fiction real, had called their discovery after the mythical land of the Amazons, California.* Barren and unpromising the region proved to be. Cabrillo in 1542 sailed along the coast and in 1603 Vizcaino explored it, mapping the bays of San Diego and Monterey, but adding little else of value to the knowledge of the region. He noted, however, that as he proceeded northward, the country became greener and more inviting in appearance.

"Not until the year 1768 was there any serious thought of settling the region which today is known as California. Baja or Lower California was occupied by Jesuits until the hostility of the government drove them from the land. Their missions were taken by the Dominicans and the way was at last open for the Franciscans to undertake the settlement of the practically unknown wilderness of Alta or Upper California. Junipero Serra, a fervid enthusiast, was chosen as leader of the movement, and he lost no time in setting out, with three little vessels and two land parties, for San Diego, where he proposed to locate the first of the new establishments. According to the plan of the governor-general, Galvez, three missions were to be founded at San Diego, Monterey and at a point midway between the two, to be called San Buenaventura. When the devoted Junipero Serra heard this

*An attempt has been made to find the derivation of California in two Spanish words, *caliente fornalla,* a hot furnace, but this origin is generally discredited.

he asked if St. Francis, the founder of their order, was to have no mission dedicated to him. Galvez answered discreetly that if Saint Francis wished a mission he could show them a port where it was to be located. It was this remark that later led to the founding and naming of San Francisco on the bay of the Golden Gate."

Thus, like the great cities of the old world, San Francisco has a mythology. In that sense it is the direct antithesis of all its rivals for metropolitan honors in the United States. This has contributed to make it peculiarly fascinating to the artistic temperament, and much of the real American romance, either in prose or poetry, that dignifies American letters has had its inspiration in and about the Golden Gate.

In 1767 Father Junipero Serra started northward and with a small band penetrated into lower California as far as San Diego. In an endeavor to locate the bay of Monterey members of his party accidentally discovered the wonderful harbor a hundred miles and more beyond. The party was commanded by Governor Portala, and included Captain Moncade, Lieutenant Frages, Engineer Costanso, Sergeant Ortega and two priests, Padre Crespi and Padre Gomez, together with thirty-five soldiers, a number of muleteers and some mission Indians from Baja, California. For weeks they had tramped through the untraveled wilds and were on the point of giving up from hunger and fatigue when, climbing a crest, they suddenly looked down upon San Francisco Bay, which they immediately recognized as a harbor of importance. They returned to San Diego and reported the discovery to Father Serra.

Upon being informed of the wonderful harbor, with its surrounding charms of nature, the priest declared that the expedition had been miraculously led by St. Francis to the spot where he wished his mission to be established. He never lost sight of this idea and three years later he explored San Francisco Bay. But it was not until the fall of 1774 that at Point Lopes on a hill overlooking the Golden Gate and the Seal Rocks that a cross was set up. The next year orders were given to send a party of settlers from the south to establish the new presidio of San Francisco. From Sinaloa and Sonora in Mexico the party, two hundred strong, set forth on the long weary march over a region without roads. They were ten months making the journey and only a remnant of the original company finally reached their destination. With this party were two missionaries, Francisco Palou and Pedro Benito Cambon. On the San Francisco peninsula they set up the Dolores Mission, and it remains there to this day, spared even by the recent earthquake and fire. A short time afterward the San Carlos, a Spanish ship, sailed into port and all its crew and passengers set to work to lay out a town after the old Spanish style with a plaza in the center. The houses were built of poles, coated with mud and roofed with tule thatch. On September 17, 1776, the first celebration was held, and the little colony took possession of the presidio in the name of King Charles of Spain.

A month later the second mission was founded with the name San Francisco Assisi. Padre Palou officiated, while the same little band of officers, soldiers and sailors took part in the solemnity. Then began the

work of the church, but with discouraging results, for the Indians were wedded to their simple beliefs and incapable of appreciating the complex forms of the established Church. The different tribes were often at war one with another, and sometimes they joined forces in an attack upon the mission. Christianity, however, made some progress and the records show that after five years' labor sixty-nine natives were laboring at the mission and ready for confirmation.

The spiritual training of the Indians was simplified to the performance of certain rites and ceremonies, coupled with the recitation of a few Spanish or Latin hymns and prayers.

When the gentler means of example and persuasion failed to keep the Indian in the correct path he was reclaimed by harsher measures. The application of the lash served to increase the devotion of the inattentive and a strict discipline enforced by rigorous punishment made all mission Indians regular church goers. "Food of the simplest character was served them, barley and maize with pease and beans constituting the staples."

"Some of the men," writes Mr. Keeler, "toiled in the grain fields and learned the simple art of letting the wind winnow their wheat; others became expert vaqueros, riding after cattle, throwing the reata and rounding up the herd; still others were trained as boatmen and handled big barges on the treacherous waters of the bay. The women spun the wool which the men sheared, and wove blankets and fabrics. They sewed garments and were busied in making drawnwork altar cloths and doing other handiwork.

"Thus all were kept employed from early mass to vespers. With the help of the Indians, low mission buildings of adobe, covered over with plaster and roofed with tile, were constructed about the church to serve as workshops and dwellings. The simplest of clothes were provided for the people. When a girl was considered of a marriageable age she was allowed to choose one of a number of the young men and they were straightway mated.

"A flourishing trade in hides and tallow grew up between the padres and the Yankee skippers from around the Horn, and this, together with contributions from the Pious Fund, made the mission prosper. In 1825 the establishment was reputed to own seventy-nine thousand sheep, a thousand tame horses and twice as many breeding mares, as well as hogs, working oxen and a large store of wheat, merchandise, and some twenty-five thousand dollars in hard cash. Such was the prosperity of the mission of San Francisco at the time when Mexico gained her independence from Spain, but all this temporal power of the Franciscans proved but a passing phase in the working out of a greater destiny for the city by the Golden Gate."

After the establishment of the mission there was little done by way of extending the settlement of San Francisco for nearly fifty years. Richard Henry Dana in his classic of California, "Two Years Before the Mast," gives his impressions of the port in 1835 as follows:

"About thirty miles from the mouth of the bay, and on the southeast side, is a high point upon which the presidio is built. Behind this is the harbor in which

trading vessels anchor, and near it, the mission of San Francisco, and a newly begun settlement, mostly of Yankee Californians, called Yerba Buena, which promises well. Here, at anchor, and the only vessel, was a brig under Russian colors, from Asitaka, in Russian America, which had come down to winter and to take in a supply of tallow and grain, great quantities of which latter article are raised in the missions at the head of the bay."

Mr. Dana in his designation of the "outer harbor" evidently refers to the coast line from Point Reyes to Ocean Beach, since from the mouth of the Golden Gate to the anchorage is only from five to nine miles.

In 1849 San Francisco became suddenly the focus of the eyes of the whole world. The discovery of gold in great measure set the cupidity of mankind ablaze and there was a sudden rush to the new gold fields. Men from every nation gathered in 'Frisco. Not only were most of the states of the union represented, but every race and every tongue had its children in that wild hurried gathering. India, Asia, China, Japan, the Philippines, Russia, the Scandinavian countries, France and England,—all sent their hardiest and most adventurous subjects to dig and pan for the yellow metal with unprecedented frenzy, and with a seeming disregard for its worth gambled it away with a recklessness unknown in the history of the world. Men who had never known the meaning of large sums of money became suddenly rich, and as suddenly threw away their fortune in the wildest kind of extravagance. They did not seek other scenes, or distant lands in which to make a show of their good luck. The gold washed

from the beds of the California streams they spent in the squalid huts of the straggling mining town, and when it was gone returned uncomplainingly to hunt for more.

Not all the miners, however, were of such reckless and volatile dispositions. A few were ambitious for the future and made the most of the spendthrift spirit of the time. These grew in wealth and power and soon came to wield an influence beyond the confines of their state. John C. Fremont in 1846 had blazed a way across the plains and over the Rockies and Sierras. On July 4, 1846, the Assembly of Americans at Soboma declared their independence, made Fremont governor, and issued a formal declaration of war. Two years of war followed when the Americans were finally victorious and the last political obstacle to emigration of American pioneers had been removed. At the news of the discovery of gold they flocked to the country in such numbers that they were soon the dominant force in San Francisco.

The city of San Francisco grew. In the year '49 a two-story hotel, known as the Parker House, rented for $110,000 annually. Something like $60,000 of this was paid by gamblers who occupied the second story. A canvas tent fifteen by twenty-five feet, and called El Dorado, was leased to gamblers for $40,000 a year. Provisions and wages were correspondingly high. It did not matter so much who a man was as how sturdy and strong he might be, how free with his gold, how quick to resent an insult, or to accept a retraction.

When countries are in the state of development, and the citizen is unable to protect his property in vaults,

honesty becomes the principal tenet of the law. So it was in San Francisco in the days of the gold excitement. Men left their possessions anywhere without guard, quite certain they would not be disturbed. The penalty of thievery was death. This manner of living introduced a sort of rough chivalry that became the custom in mining camps all over the world. Modern commercialism has dulled the edge of this ennobling sentiment, and the Alaskan country during the recent discoveries of gold in that region was not ruled by it to any marked degree.

For four years, until 1853, San Francisco enjoyed unprecedented prosperity. Not only were the mines developed in every possible way known to that time, but the rich country round about the city was cultivated and made to produce greater riches than the mines. The decline in gold production in 1853 was followed by a period of comparative quiet and readjustment. In spite of the fact that for a number of years the annual output of gold continued above fifty million dollars, public confidence in the boundless nature of the supply declined. Dull times fell upon San Francisco until the exciting days of the Civil War, when union or secession became a burning issue. The state decided with the north and showed its loyalty by subscribing for some time to the Sanitary Commission twenty-five thousand dollars a month, half the sum contributed by the entire country. This from a city of a hundred and ten thousand people astonished the whole country. It was the bread cast upon the waters that is returning after many days a thousand-fold increased.

During the stirring times before the war, the eagerness to receive news and to communicate with far-away friends became so great that the pony express was started. Hardy riders carried the mail-bags on fast broncos all the long and dangerous way from Sacramento to St. Joseph, Missouri, the western terminus of the railroad. The distance was covered in the surprisingly short interval of ten and a half days, making the time from San Francisco to New York only thirteen days.

Still the people of California realized the necessity for closer relations with their kinsmen across the Rocky Mountains, and a railroad was the issue of the day. Congress, appreciating the strategic importance of a transcontinental system, listened to the demands of California and passed a bill for the construction of the road. In 1863 work on what seemed an almost hopeless undertaking was commenced at Sacramento. A small company of men who had been successful in business enterprises in Sacramento, notably Leland Stanford, C. P. Huntington, Mark Hopkins, Charles Crocker and E. B. Crocker, secured enormous concessions from the government, both in land and money, for building the Central Pacific Road, while another company received similar grants for constructing the Union Pacific Road, starting at the eastern end of the line. The dramatic race across the continent in the construction of these roads, each of which was to have all the line it had laid up to the point of meeting, ended on the desert near the Great Salt Lake, where, with due ceremony, in May, 1869, Leland Stanford drove

the last spike in the line which united California with the East.

It was indeed an auspicious time for California, but San Francisco was disappointed with the result. The directors of the road lived, during the first few years, at Sacramento. An effort, the second in the history of the city, was made by people interested in Benicia, to make that place a rival of San Francisco, and to have the overland terminus there. Furthermore, the intention of the Central Pacific directors to make Goat Island their approach to San Francisco, connecting it by ferry with the city, was so hotly contested that the permission of Congress was withheld. Instead of the expected boom upon the completion of the road, San Francisco suffered a most disastrous panic.

After the decline of gold in California, speculative interest in the precious metals was revived by the discovery in Nevada of vast deposits of silver. As these mines were largely owned and controlled in San Francisco, the market in silver stocks became a gambling enterprise on a vast scale. Fortunes were made and lost in a day and the prosperity of San Francisco was dependent upon the reports of the outlook in Virginia City. In 1862 the Comstock Lode produced six million dollars in silver. Speculation in the mines of this region was so great that, in the following year, stocks of one company sold at six thousand three hundred dollars a share. Of course a panic ensued, although the yield of the Nevada mines in 1864 reached sixteen million dollars.

Ten years later all this fever of speculation was eclipsed by the vast yield of the Comstock Lode. Fab-

ONE OF THE HANDSOME RESIDENCE DISTRICTS ON NOB HILL.
These beautiful homes were dynamited in an effort to stop the fire, but the high wind drove the flames to the ruins and burned the wreckage.

THE JAPANESE GARDEN—GOLDEN GATE PARK.
It was to these beautiful grounds that over 100,000 homeless, starving people went for safety.

INNER QUADRANGLE OF LELAND STANFORD UNIVERSITY.
This beautiful University was almost entirely wrecked by earthquake; only one small building left standing.

ulous sums were taken from the Consolidated Virginia and the Gold Hill Bonanzas. In less than four years the Belcher and Crown Point mines had produced forty million dollars. Then came the Consolidated Virginia, paying monthly dividends of three hundred thousand dollars. So wild was the excitement that the combined value of the Comstock shares is said to have increased during two months at the rate of a million dollars a day.

This was the time when the bonanza kings reaped their harvest. The most spectacular of the fortunes made thus were amassed by two San Franciscans, J. C. Flood and W. S. O'Brien. They began investing in a small way as early as 1862 in the Kentuck mine, but it was not until some years later, when associated with two practical miners of Virginia City, J. W. Mackay and J. G. Fair, that their operations became so large as to attract public attention. At the time they secured possession of the Consolidated Virginia, its shares had a mere nominal value, since it had yielded no returns and showed little prospect of so doing. Luck was with them in the venture, and when a fabulously rich vein was unearthed the stock rose so that the four men found themselves possessed of princely fortunes.

Happily for California the day is over when her prosperity is dependent upon lucky mining strikes. The mineral output of the state for 1900 was over thirty-two million dollars, no inconsiderable sum even in comparison with the great yields of the past, but today the state relies upon such diversity of products that the vicissitudes of mining cannot shake it. In 1900

the value of the cured fruit crop was eleven million dollars, only four million less than the gold output for the same year, and this is but an index of the productiveness in other horticultural and pastoral lines. Wheat, wool, oil, borax, beet-sugar, lumber and building stone are among the many products which contribute to the wealth of California.

San Francisco was the legitimate center of all this outpouring of nature's bounty, and once the state had permanent settlement its principal city grew with wonderful rapidity. In 1900 San Francisco had, according to the government census, a population of 342,782. Since that time, because of the new possessions of the United States in the East and the consequent increase of this country's trade with the Orient, the coast cities have become far more important in the commercial development of America. San Francisco has reaped the benefit of this fact and at the time of the earthquake recorded in this volume the city boasted a population of over four hundred thousand. Its streets were equipped with a model system of tramways, its hotels were patterns of elegance and splendor, its newspapers vigorous and the spirit of the city rugged and free, a dower of the argonauts who braved sea and mountain and desert to settle in its beautiful valleys and about the glorious bay.

CHAPTER XX

THE PARIS OF AMERICA

San Francisco Was One of the Most Beautiful Cities in the World and the Pride of the Pacific Coast—Handsome Buildings, Hotels, City Hall, Magnificent Residences, Beautiful Churches and Parks the Delight of Every Visitor—Nob Hill, the Home of the Comstock Kings, Art, Refinement and Riches—Growth of the City Phenomenal During the Agricultural and Manufacturing Periods Which Succeeded the Golden Age—Business Receives Impetus by Declaration of War with Spain—Rivalry of Other Coast Cities.

Topographically, San Francisco occupies a site at once superb and commanding. Built along the eastern slope of a peninsula eight miles in width, with the broad Pacific lapping its shores on the west and the Bay of San Francisco on the east, it possesses natural advantages which make it extremely desirable, both as a place of residence and as a center for investment in its growing enterprises. With its northwestern spur resting upon the Golden Gate, the city is the entre pot for the commerce of the orient and the possibilities of the future were boundless until in a single day the cosmopolis of America was swept away and its future enshrouded in uncertainty, mystery and gloom.

The first building that greeted the eye of the tourist

coming overland from the east as he crossed the beautiful Bay from Oakland Pier, was the Union Ferry Depot, erected by the State of California at great expense because of the difficulty experienced in securing a firm foundation in the banks of mud and silt upon which it rested. To the right of the incoming traveler rose the heights of Telegraph Hill, where, in the old days, the flag announcing the arrivals of steamers was floated. To the center of the picture, but more in the background, could be seen Nob Hill, upon which the magnificent residences of James Flood, the Comstock king; Charles Crocker, the railway magnate; Senator Leland Stanford, Mark Hopkins, Collis P. Huntington and other multi-millionaires stood resplendent in beauty of construction and ornateness of finish. Straight in front, as one stepped out of the Ferry Building, lay Market Street, lined by beautiful and massive business structures and running in a straight line to Twin Peaks, four miles to the westward. To the left lay the Potrero, and finally Hunter's Point near which is located the Union Iron Works where were constructed the peerless battleship Oregon and other warships which were later to become the pride of the American navy and an honor to the country's flag.

The architectural beauty of the devastated city was one of its chiefest charms; although in its transition period, the art was making rapid advancement and the character of its buildings combined solidity and firmness with beauty and taste. In the last two decades, the old wooden buildings had largely been displaced by structures of iron and stone, especially in the sec-

tions north and south of Market Street and east of Powell. To the westward, in the Mission, Hayes Valley, Visitation Valley, and the whole of the western addition, lay the residence district, crowded with thousands of beautiful homes, surrounded by grassy lawns and their slopes covered with roses that bloomed all the year round. In recent years, the needs of the growing population forced the erection of innumerable flat buildings, richly finished and artistically designed. Built almost exclusively of wood, these handsome structures furnished ample fuel upon which the fire fiend later was to feed with ghoulish glee.

While the public buildings of San Francisco were not numerous, those constructed in recent years were the best money could supply. The old buildings, with their covering of mortar, were being displaced by steel and solid granite structures, and architecturally, they showed vast improvement. The new City Hall which occupied a three-cornered tract, bounded by Larkin and McAllister Street and City Hall Avenue, was a noble structure. More than twenty years were spent in its construction and its cost was $6,000,000. With a dome 335 feet in height, surmounted by a massive figure of Progress, by Marion Wells, it was a dignified landmark that greeted the eye from every elevation in the city.

The Hall of Justice, in which were located the courts, city prison, police station and other public offices, was a notable example of fin de siecle architecture. It stood on the site of the old Jenny Lind Theater and had replaced the "Old City Hall" which, in its day, was the most famous gambling house in the new me-

tropolis. The new hall was completed three years ago and cost nearly $1,000,000. The County Jail, on Broadway, near Kearney, which escaped the flames, is a relic of the past, and its decrepit appearance reflects little credit upon the municipality. The House of Correction on the Mission Road, and the City and County Hospital at the foot of Twenty-sixth Street, complete the list of municipal buildings.

The Federal Government was represented by the Customs House at Washington and Battery Streets in which the United States courts and federal offices were lodged. The building was of red brick and presented an unsightly appearance. The commissary department of the army and navy stood on New Montgomery Street, just back of the ill-fated Palace Hotel. It was a ramshackle concern and added little to the beauty of the city. The new postoffice at Seventh and Mission Streets, however, was a noble structure of granite and marble and cost a tidy sum. The facilities for handling mail were of the best and visiting postoffice officials pronounced the building one of the best in the United States. It suffered severely in the conflagration, but was not wholly wrecked.

The libraries of San Francisco added to its fame. The free Public Library, located in the City Hall, contained nearly 200,000 well selected volumes. The famous Sutro library of 85,000 volumes of rare books and manuscripts, including numerous fine examples of illumined books made by the monks in the dark ages, was in the old Montgomery Block, an early landmark which stood at Washington and Montgomery Streets. The Mechanics Library on Van Ness Avenue, the

French Library on Larkin Street near the new City Hall and the innumerable private libraries belonging to wealthy residents, placed the citizens within reach of the best that genius and cultivated taste in literature and art could supply.

In the character of its hotels, San Francisco especially was renowned. Foremost among the world-famed hostelries was the Palace Hotel at the corner of Market and New Montgomery Streets. Seven stories in height, built of steel, wood and plaster, of beautiful design, it was a conspicuous sight. With its 2,000 rooms fitted up in sumptuous style, its accommodations were the best that science could suggest or unlimited wealth supply. Its cuisine was the wonder of crowned heads, titled travelers and notables of many lands who spent days and weeks each year under its roof. A magnificent colonnade, fashioned after the famous Parisian model and which was reached by a driveway from the street, and a profusion of semi-tropical plants, gave to the interior of the hotel a soft beauty which added vastly to its attractiveness for visitors. The Palace was built by William Ralston, a banker, about 1875, and later became the property of Senator Sharon. More than $2,000,000 was spent in improvements upon the structure since the foundation stones were laid and within its walls many notables, including foreign potentates and presidents of the United States, found comfortable lodgings and solid entertainment.

The St. Francis Hotel, which faced Union Square, was a grand structure. Built entirely of stone and marble, it was architecturally the most imposing building in San Francisco. Its cost was $2,000,000 and a

vast sum was expended upon its appointments. The Fairmount Hotel on Nob Hill was a superb structure, recently erected at enormous expense. Next in order came the California Hotel, a superb structure of pressed brick and stone, ten stories high, on Bush Street, west of Kearney, the Occidental Hotel on Montgomery Street between Sutter and Bush, the Lick House a block to the southward, whose dining room was the finest in the world, the Grand Hotel, opposite the Palace, the Russ House on Montgomery, between Bush and Pine Streets, and the Golden West Hotel on Ellis, near Powell Streets. In addition to these hostelries, there were innumerable French restaurants which for years were the delight of bon vivants because of their unsurpassed cuisine. Among the more notable of these may be mentioned the Poodle Dog, Marchand's, Maison Riche, Maison St. Germain, Delmonico's, Café Zinkand, and a host of others. All contributed to increase the fame of San Francisco as "the heaven for bon vivants and dilettantes of epicurean taste and delicate palates," and all went down in the storm of flame.

The attractions offered by San Francisco in the way of amusements were as varied as they were attractive. Its theaters were of the best, and because of the discriminating tastes of the theater-going public, only the best that the dramatic and musical world had to offer was rewarded by substantial patronage. The Grand Opera House, a portion of the estate of the late Senator James G. Fair, on Mission Street above Third, was a notable amusement place. Owing to its immense size, its stage alone was adapted for pretentious pro-

ductions and the greatest singers of the world have appeared thereon, amid tumultuous applause. Almost every actor of note the world has produced in recent years has played his parts within the now shattered walls and he invariably was greeted by overflowing houses. It is significant that grand opera was being presented there during the week of the catastrophe.

The Columbia Theater, on Powell Street near Market, was an attractive house of the first class. The Alcazar Theater, on O'Farrell Street between Stockton and Powell, was a stock theater of the better class, while the Orpheum, directly opposite, was devoted to vaudeville. Next the Alcazar, to the westward, was Fisher's Theater, a burlesque house. The California Theater on Bush Street, where, in the early days, the best American actors matriculated, was a favorite house. On upper Market Street stood the Central Theater, a melodrama stock house, while a block west of it, at the corner of Ninth Street, was the Majestic Theater, also a stock house of the first class. In addition to the places of amusement named, there were many cheaper theaters, but all of them did a thriving business all the year round.

In a city as cosmopolitan as was San Francisco, it is to be expected that its clubs would be plentiful and imposing. The best known club was the Bohemian, known not because of the beauty and luxury of its clubhouse, the excellence of its cuisine, or the superiority of the wines in its cellars, but for the comradeship of its associations, the pictures upon its walls, and its unique entertainments. The club was started by newspaper men, artists, musicians and actors in 1872,

and its jinks have gained world wide fame. As this club stands for easy-going fellowship, the Pacific-Union Club, at Post and Stockton Streets, represented the wealth and dignity of San Francisco. Its membership included the foremost merchants, financiers and men of affairs of the city. The University Club, organized in 1890, was the favorite gathering place of all university men of the country, and its accommodations were of the best. The Cosmos Club, organized in 1881, is magnificently lodged at Sutter and Octavia Streets, and it numbers among its membership nearly all the army and navy men of note who, at one time or other, were stationed at Mare Island or the Presidio. The Union League, a powerful Republican organization, the Concordia Club, San Francisco Verein, the Press Club of San Francisco, the Burlingame Country Club, the Century, the Sorosis, the Forum, the Laurel Hill, the Corona, the California and Philomath, the seven latter being women's clubs, indicate that club life had its attractions and was heartily supported by the stricken citizens before the crowning disaster came and robbed them of their homes.

The transportation facilities of San Francisco were of the best. Its street car service, cable and electric, was superb. The various lines, merged under one management, reached every section of the peninsula, however remote, and contributed to improve the outlying districts. The cable lines climb hills and descend into valleys of surprising height and depth, but it was this fact that entranced visitors who were on their way to the park and Cliff House. Trailing along lawn-lined streets, roses of every hue in evidence at every

turn, a journey through the western addition resembled an excursion into fairy land. Much of this floral beautification of the city in recent years was due to the efforts of San Francisco's Improvement League, which, in 1904, secured the passage of enabling acts by which bonds to the amount of $18,000,000 were to be issued for the purpose of building a million-dollar hospital, playgrounds, and for park and boulevard improvements. A crusade was then begun to plant flowers, decorate dooryards and to arouse every citizen to a sense of civic responsibility.

In its parks, the city was especially fortunate. Golden Gate Park, one of the largest in the world, is a charming spot in which nature and art vie with each other in the superiority of their achievements. Flowers, semi-tropical plants, rare exotics, charm the sense, while imposing statuary and innumerable works of art attract the eye at every turn. From its elevated points, notably Strawberry Hill, the blue Pacific sweeps to the limits of the horizon on the west, and in the north the rugged Tamalpais rears its lofty heights into the clouds. To the eastward the Bay of San Francisco glistens in the sunlight, forming a never-to-be-forgotten picture.

Every facility in the way of entertaining visitors at the park abounded. There was boating in the miniature lakes, playgrounds for the children were numerous, and to the curious, the California Museum offered unusual attractions. Other parks abounded in the city; Portsmouth Square, Washington, Jefferson, Telegraph Hill, Union Square and a host of "breathing places" scattered throughout the city, contributed in

many respects to make San Francisco a veritable paradise.

In the character of its churches, with the diversity of their architecture and richness of their finish, San Francisco ranked among the leading cities of the world. The stately St. Ignatius Church and College, erected at a cost of more than $2,000,000, stood at the corner of Van Ness Avenue and Hayes Street, and both early fell prey to the insatiable flames. Two blocks to the eastward, the tall towers of St. Mary's Cathedral, of white stone and red brick, rose in solemn majesty. The building was badly damaged, but happily, not beyond repair. Only the churches in the downtown districts, north and south of Market Street, and east of Van Ness Avenue, including Grace Episcopal Church on Nob Hill, were destroyed. Those in the residence district in the Western Addition practically escaped unscathed.

It were a superfluous task to describe in detail the innumerable buildings of imposing aspect which were reduced to ashes in the fire that attended the earthquake. Among these were splendid business blocks, such as the Haywood Block, the Merchants' Exchange, the Continental Insurance Company's building, the stately Call, Chronicle and Examiner structures, which formed what was known as "the angle" at the intersection of Market, Kearny, Geary and Third Streets. In the eastern district of the city, which was wholly devastated, there were dozens of banks and office buildings, the homes of lawyers and professional and business men. These were destroyed with all their

contents, the aggregate loss reaching a stupendous sum.

Commercially, San Francisco long had been the chief city of the Pacific Coast, and its trade, since 1898, was rapidly increasing, owing to the impetus given its industries by the Spanish-American war and the consequent acquisition by the United States of the Philippines. As a manufacturing center, it was swiftly forging to the front rank. The quality of all its outputs was of the highest and its trade extended to the Orient and Occident as well as to the coast countries of North and South America. The magnificent harbor facilities and its railway connections with the east, afforded by the Southern Pacific and Santa Fe Railways, prompted the United States Government to transact all its business with the Philippines by way of San Francisco. This contributed largely to swell the volume of imports and exports of the city, and was a strong agent in developing many industries which for years had struggled on without substantial reward. Foreign capital poured into the city, infusing new life into the veins of its lagging commerce and adding strength and vigor to every branch of business.

The rapid growth of San Francisco necessarily caused jealousy among other rival cities of the Pacific Coast, but the pioneers of "the days of gold and the days of old," as well as the younger, but more energetic business men of San Francisco, worked while their detractors lauded the pre-eminence of their respective sections. It is a noteworthy fact that when disaster overwhelmed the city by the bay, its most

bitter rivals in the days of prosperity were the first to rally to its support, with outstretched arms and open purses. It is this spirit of fraternity in the days of adversity which is one of the grandest traits of the men of the setting sun and it is this spirit, exercised in the proper channel, which will contribute to the rebuilding of San Francisco on a scale of greatness and solidity to which it might never under ordinary circumstances have aspired.

CHAPTER XXI

THE BAY OF SAN FRANCISCO

The Golden Gate at Sunset—A Harbor Sufficient to Float the Navies of the World—Panoramic View From the Coast Superb—Flowers of a Thousand Hues Bloom Upon the Hillsides—Winter Scenes the Most Charming—The Great Ferry—A Vision of Loveliness.

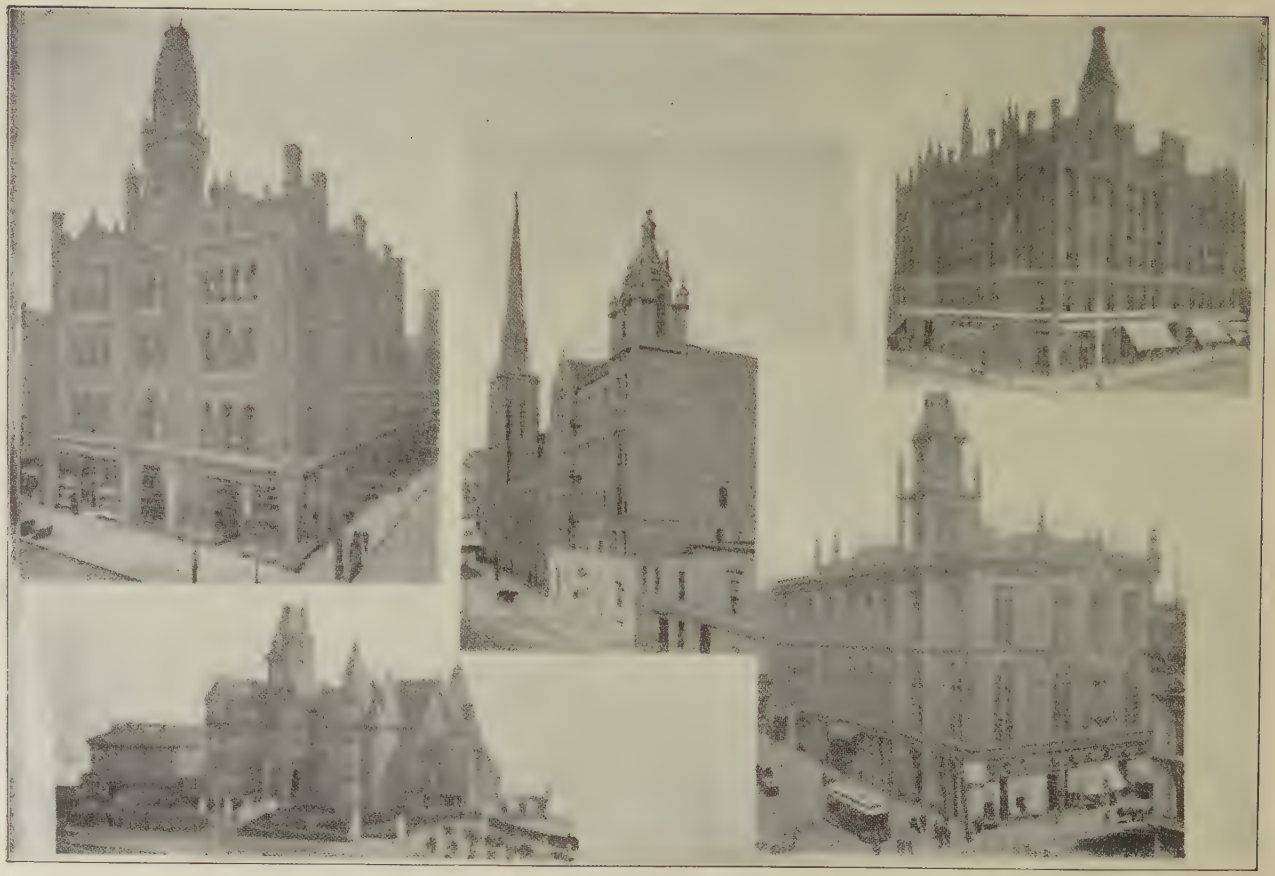
To have looked at sunset through the Golden Gate and watch the sun like a great dolphin plunge into the sea, seeming to heat the waters to a glowing red, which reflected in the sky made a thousand delicate colors and shades to veil the whole landscape, is to know the real meaning of those lines of Keats:

> "Beauty is truth, truth, beauty; that is all
> Ye know on earth and all ye need to know."

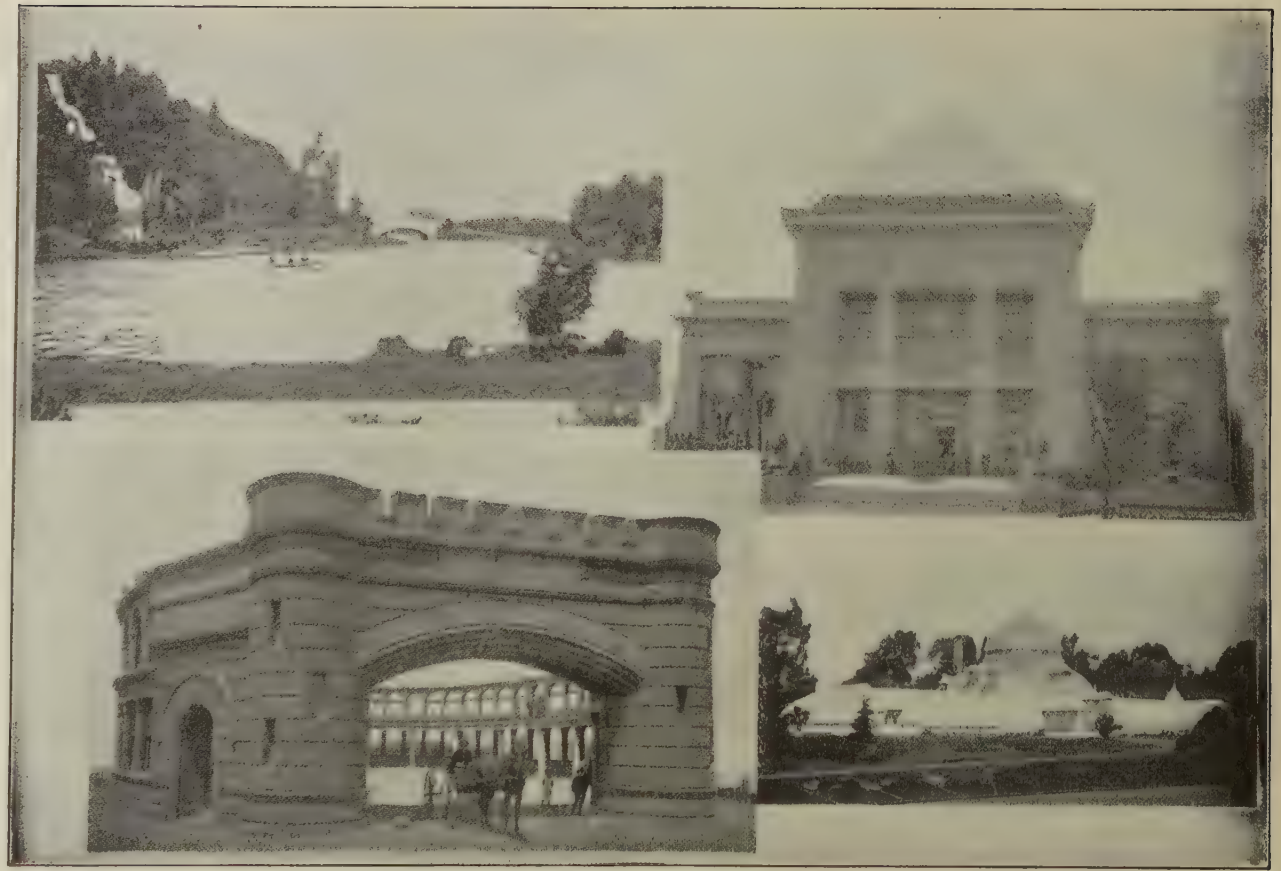
To one who has not often seen that miracle of nature an attempt to describe it would be futile. Even those who have watched this transformation almost every evening for a lifetime are content to enjoy it in silence. Under the heading "The Peerless Bay," Charles Keeler, a native son of San Francisco, and a writer of peculiar grace and delicacy, pictures this unparalleled harbor. "A free sweep of water navigable for the largest ocean vessels over a stretch of well-nigh sixty miles; a land-locked harbor with but a single passage

a mile in width leading to its sequestered waters; a haven cut off by hills and mountains from the ocean, yet so accessible that the largest steamers can enter on all tides—such is San Francisco Bay with its four hundred and fifty square miles of water! A quarter of the population of California dwells on its shores. With a width varying from seven to twelve miles, it lies just within the Coast Mountain spurs that embrace it, and in that most temperate of latitudes, the thirty-eighth parallel. Its upper reaches are subdivided into two inner bays—San Pablo and Suisun. The former, with a diameter of some ten miles, is the northern end of the great waterway, while the latter, connected by the narrow Craquinez Straits, lies to the eastward and appears like a huge reservoir into which the Sacramento and San Joaquin Rivers pour their flood.

"Such is the harbor which Portalá first looked upon from the heights in 1769, and into which the little Spanish ship San Carlos sailed in 1775. Great are the changes which have taken place since then, but we of today are only on the threshold of the civilization destined to flourish here. This peerless bay, accessible, deep, safe, convenient, large enough for all the navies and merchant fleets of the world without crowding, in a climate free from winter snow and summer heat, surrounded by one of the most productive countries known, where nature is lavish alike of her fruits and precious metals,—who dare set a limit upon its growth? The eyes of the world are upon the Pacific now, and upon the United States. San Francisco Bay is the great point of departure for America into the Pacific,



A GROUP OF PUBLIC INSTITUTIONS, SAN FRANCISCO.



GOLDEN GATE PARK.
Some of the points of interest in this great recreation grounds, which sheltered over a hundred thousand souls.

and as such is destined to be one of the great world harbors of the years to come.

"What wonder that many explorers sailed along the California coast and failed to perceive the narrow break in the rocks through which the Sacramento River rolls to the sea? Fifteen miles away, more or less, the Berkeley Hills rise from the farther shore of the bay, forming a background, which, viewed from the ocean on a misty day, appears to effectually close up the mile-wide gap which alone affords an entrance to the broad expanse of secluded water. Barren dreary rocks flank the shores, fog-hung and storm-worn, inhabited by cormorants and murres. To the south, guarding the entrance, is Point Lobos, with the Seal Rocks off shore where herds of sea lions bask in the sun or fish in the adjacent water. To the north is Point Bonita, where a lighthouse and fog horn warn mariners to avoid the rocks. Through the narrows the tide runs like a millrace. An old-fashioned brick fort stands close by the water at the inner point of the strait on the city shore. It is now abandoned, but upon bluffs to right and left are terraced embankments behind which lurk batteries of immense disappearing guns, while just inside the Gate in the midst of the bay is a rocky islet which has been converted into a citadel commanding the entire channel. This is the picturesque Alcatraz Island, a point of peculiar strategic importance in the fortification of the bay.

"On either side of the Golden Gate a peninsula juts from the mainland, with the sea to westward and the bay to eastward. The northern peninsula is occupied by Mount Tamalpais and the Bolinas Ridge, with vil-

lages and charming residence suburbs nestling at its base (Belvedere, Sausalito, Mill Valley and San Rafael) while upon the hills of the southern tongue of land is the city of San Francisco. Straight away eastward on the far shore of the bay, stretching along the plain and foothills of the low spurs of the Coast Mountains, is a group of towns and cities which are practically fused into one, although still retaining their separate names and municipal governments. The principal of these are Alameda, Oakland and Berkeley, with an aggregate population of about one hundred thousand.

"San Francisco Bay is an ever-changing pageant of gray and blue, with purple hills on its margin varying with the season from green to brown. The same point of view seldom appears twice alike. Seasons, weather, hour, all stamp their imprint upon it and make it live. It is the more companionable because of its many surprises. You think you have followed it through the whole gamut of its changes, grave and gay, veiled and transparent, calm and tempestuous, when behold the next hour has transfigured the scene and presents an aspect before undreamed!"

What San Francisco bay was before the earthquake can be imagined from Mr. Keeler's description which was written when the city stood intact. He dwells on the charms of the place as one who knew and loved its every feature.

"Who shall undertake to describe this palpitating wonder of water and cloud, margined with billowy ranges? At best it must be but a few fleeting impressions that the pen transfixes. In summer-time, when

many rainless months succeed, the hills are sear and brown. The monsoon sweeps in through the Goldon Gate and spends its refreshing salt breath upon the Berkeley Range, flecking the dull greenish-blue tide with white. Off to the south the water seems to reach away to a misty dreamland. Somewhere down there is the prosperous city of San Jose, but of this the eye gives no hint. Northwards there is a long rolling boundary line of pale purple hills. Red Rock, an island in the bay, stands up as a striking bit of contrasting color. We can distinguish the dark bands of eucalyptus groves high up on the tawny slopes of the Berkeley Hills, and the settlement below dotting the foothills for some miles. To the northwest is Tamalpais, rising gracefully to its 2,600 feet, a pale blue mountain mass with keenly chiseled profile, slanting down to the north in a fine sweep, with the hills of Angel Island in the foreground. In a secluded nook at the northern end of the bay, opposite the little town of Vallejo, lies the Mare Island Navy Yard, with its drydock, repair shops, and equipment for the naval base of the Pacific squadron.

"From Black Point, the military reservation just within the Golden Gate, the profile of San Francisco is built up in big terrace lines to the quaint old frame battlemented structure on the bold rocky summit of Telegraph Hill. Thence in long sinuous sags, interrupted by the square angles of houses atop the ridge, it runs; streets may be seen plowing through the banks of buildings up the steep slopes. The turrets of the Mark Hopkins Institute of Art stand out conspicuously on the summit of California Street Hill, from

which point the ridge falls off abruptly to the lowland of the valley followed by Market Street. The city's main thoroughfare may be traced from afar by three landmarks—the slender gray stone clock tower of the Ferry Building, the high domed Spreckels Building and the dome of the City Hall, surmounted by a colossal figure of Liberty.* This dome is the third highest in the world, rising to a height of three hundred and thirty feet, and is a graceful point in the city's heart whether viewed from sea or shore.

"Beyond the valley which sunders the hills of San Francisco, rise the Twin Peaks to a height of over nine hundred feet. On extends the range south into San Mateo County where the mountains stretch away in blue misty reaches.

"The waterfront is lined with docks crowded with ships and steamers, the slender masts and maze of rigging foresting the shore with ropes and spars. Other ships and white transports from the Philippines lie at anchor here and there off shore, with an occasional battle-ship or cruiser to lend impressiveness to the scene. Comfortable fat white ferry boats with black smokestacks slip in and out on their journeys to and from the opposite shores. In midstream is Yerba Buena Island, now popularly known by its nickname of Goat Island—a rounded land mass, treeless and brown on its exposed side but with groves of live-oak hidden away on its northern slopes. A naval training station is located there, fitting boys for sea duty on our men-of-war.

*The Spreckels Building and City Hall were destroyed.

"To the eastern eye accustomed to verdure in summer-time, the dry hills of San Francisco Bay look strange enough, but the old resident loves this aspect of nature and would not change it had he the power. There is something quieting and restful about the sober tones which vary from brown and yellow through a whole range of purples, grays and blues, with plumbeous curtains of fog rolling in from the sea. The wide vistas, the dignity and gravity of the scene, the bigness and freedom of all, sink deep into the heart. There is nothing trivial or commonplace, nothing merely pretty about it. Its largeness and nobility grow upon the beholder with years of residence.

"At times all this varied sweep of view is revealed in the utmost detail, with sun sparkling on the rippling waves, and an hour later the high summer fog will drift over, softening the outlines, veiling the hills, dimming the distant heights, and giving the fancy free scope to build into the obscurity what it pleases. A fresh sea breeze generally blows across the bay throughout the summer, but there are days when the water seems fairly oily in its serenity.

"The night views of the bay have their own charm. As the ferry boat leaves the waterfront, a multitude of bright lights sparkle at the many piers, some of them red and green, throwing splashes of soft wavering color in the water. The city streets up the steep hills are indicated by twinkling stars, and across the water sparkle the lights of Berkeley on the upper slopes. The dark dim land masses, the blackness of the bay with a foggy sky above leave a solemn and

mysterious effect of vastness and loneliness on the mind.

"I have dwelt on the beauty of the bay in summer because it is so distinctively Californian; but the winter, too, has its own loveliness. The few showers of early autumn are often followed by some of the warmest days of the year, in October and even in early November. This is the season when we look for northers, those singular wind storms which some people dislike, but which I for one welcome among the experiences of the year. The north wind blows with hot, dry gusts of the desert. If the rains have started any green blades forth, they droop and wilt beneath its withering fury. Every particle of moisture in the air is dried out and the atmosphere is crystal clear. At night the stars blaze and flash as if opening wide their wild eyes at the tumult of the wind. Each successive day for three days the weather grows hotter and drier and the force of the wind increases. Then the gale dies away as suddenly as it arose, to be followed not infrequently by a welcome shower. There is something immensely stimulating, exhilarating, even exciting about this storm beneath an azure sky. It is our substitute for thunderstorms which are almost unknown.

"When the winter rains finally set in, what a change comes over the landscape! Every shower starts forth the green blades on hill and plain. The southeast wind blows a gale, the dark clouds hurry over the leaden bay, the torrents fall, and everybody is happy. At the end of the storm, when the sun thrusts its searching rays through the cloud loops, striking the distant hill-

sides, a pale glint of green brightens them. Soon, how wonderfully soon, they are clothed in verdure from valley to crest! The green fairly glows and shimmers beneath the winter sun. And the atmosphere, washed of all impurities by the downpour, is of matchless transparency. Every ravine and dimple on the blue slopes of Tamalpais is revealed in all its lovely nakedness. Far away on the summit of the San Mateo Range the redwood trees may be seen standing up against the sky. From the Berkeley Hills, out through the Golden Gate the largest of the Farallone Islands is plainly visible forty miles away and its intermittent light flashes during the hours of darkness. The houses of San Francisco and the ships in the harbor are defined in startling clearness.

"The winter months about the bay are really a curious union of autumn with spring. Winter is overlooked in the rushing together of the dying and newborn year. Flowers are blooming, birds are singing and a thrill of life passes over land and sea.

"At this season the bay is crowded with hosts of birds. Ducks and scoters swim about off shore. Murres and cormorants, grebes and loons dive and sport to their hearts' content. It is the gulls, however, that attract the greatest attention of passengers on the ferry boats. They follow the boats back and forth, picking up food thrown overboard from the cook's galley and darting after bread tossed them from the deck by interested spectators. Feeding the gulls has become a favorite amusement, and a pretty sight it is to see them poise in readiness and swoop upon the morsel of bread, catching it in mid air. So tame do

they become that I have known them to take bread from the outstretched hand of a man.

"With this winter view of the bay, let us leave it to inspect more closely the great mart upon its shore. Hills of green and blue lie afar off. Mount Diablo, one of the commanding peaks of the Coast Mountains, lifts its head back of the Berkeley Range. A brown streak on the blue water of the bay marks the course of the Sacramento River, flooded by the winter rains. The islands are beautifully green; ships have spread their clouds of canvas to dry after the storm; back and forth the eye ranges over miles of varied scenery, all colored with a palette that only a California winter furnishes. The great ferry boat glides into its slip and we follow the crowd off the upper deck into the magnificent nave of the Ferry Building and down the broad stone stairway to the city street."

Through this Golden Gate will go in the near future a stream of the rich and varied products of the great western states. Into that peaceful harbor which could float the ships of all the world will come the treasure of the Orient. But whatever material success may come to the San Francisco of the future it will never be rich enough nor splendid enough to outshine the natural grandeur with which nature has endowed the Bay of San Francisco.

CHAPTER XXII

GOLDEN GATE PARK

Chief Pride and Joy of San Francisco—Built on Sand Dunes—Grand Pleasure Ground for the People—Beautiful Trees and Flowers, Conservatories, Aviaries, Japanese Garden, Museum and Music Stand—Great Celtic Cross—Cliff House and Sutro Baths.

Perhaps the chief pride and joy of San Francisco is Golden Gate Park, the beautiful pleasure ground that for days and weeks after the earthquake was the camping ground of thousands of the city's homeless people. It is about three miles from the center of the city and contains 1,013 acres, valued at $11,000,000. Plans had been made to extend the park's "panhandle" down to Van Ness Avenue, within two blocks of the City Hall and through a thickly built-up residence district.

The park, including the "panhandle," is over four miles long. When it was provided for by legislative act in 1870, the site consisted for the most part of barren sand dunes. The wind was constantly changing these sand ridges, but lupin was planted by tens of thousands, and a special grass was imported, and thus the shifting of the sand was stayed. Then drives were laid out and macadamized, trees, shrubs and flowers planted, lawns laid down, and now, after but thirty-five years, the sand dunes have become a park whose

rare beauty is the astonishment of all visitors, and whose fame has gone into every land.

A drive or walk through the park brings new beauties to view with every turn of the road or path. Here a lake dimples amid its overhanging foliage; there a herd of bison or deer is started from its grazing. Now a company of happy children is seen laughing about numerous games, and again a fashionable throng watches a spirited game of polo, or listens to the music of a fine band. Youths are seen playing baseball, or football; gay equipages go tooling by, or a string of bicyclists winds in and out along the path reserved for the riders. A cascade plashes and dances over the rocks in its course down Strawberry Hill and into Stow Lake. A great cross rears itself from an eminence to celebrate the first religious services on the coast in the English tongue, held by the daredevil mariners of Sir Francis Drake. Peacocks and pheasants strut or flit about, the quail call from the hills, rabbits flee along the shaded walks, and the visitor feels that in the midst of all the beauty he is very near to nature's heart.

Near the Stanyan Street entrance is the stone lodge of the Park Commissioners, who have the park in charge, and spend the fund raised by taxation each year for park purposes.

Not far away is a dainty little bit of water, called Lake Alvord, with a plashing fountain and numerous waterfowl. A little beyond is the play-ground of the children, with a brown sandstone building, where a light luncheon can be had, a carrousel, many swings, and a lot of donkeys and goats for riding and driving.

About this place stretch wide lawns, on which the people are permitted to wander and gambol at will. In a large paddock, close by, are herds of deer and elk, and a giant grizzly sniffs lazily about the bars of his large enclosure. Ostriches poke their long necks over the fence of another paddock, and some distance beyond is a noble herd of buffalo, with the strangely horned moose.

A conservatory, modeled after the royal conservatory at Kew, England, has a dome fifty-eight feet high, and contains many rare specimens of tropical plants, including a collection of orchids and some specimens of the Victoria Regia. Then there is an aviary, continually melodious with the songs of the birds, who do not seem like prisoners as they flit among its trees. Squirrels have a big cage to themselves, and the trees in it afford them their coveted hiding places for stores of winter nuts.

Nothing more delicate can be imagined than the Japanese Garden, with its houses built like those on which Fujiama looks down. The gold-fish glint in the garden rills, and storks stand about in fine solemnity. Dwarfed trees half hide vases of rare Japanese ware. The richly carved gateway was built without the use of a nail. Dainty Japanese attendants are in waiting to serve tea and comfits, and the visitor seems suddenly transported from Occidental hurly-burly to Oriental calm.

In the Museum, a building of Egyptian architecture, which is a reminder of the Midwinter Fair of 1894-95, something more than a start has been made on what will some day be a great collection of works of art and

rare curios. This Museum was presented to the Park Commissioners by the Midwinter Fair Directors, and much of the collection was purchased by the net proceeds of that fair. Private contributions continually add to the attractiveness of the exhibit.

In the park is some good statuary, notably the Francis Scott Key monument, by W. W. Story; the Baseball Pitcher, by Douglas Tilden, and the monuments to General Grant, President Garfield, Thomas Starr King, and General Halleck. Claus Spreckels has donated a beautifully designed and sculptured stone music stand to the park, where the band concerts are given every Saturday and Sunday afternoon. There is an interesting tree exhibit, in Concert Valley. On October 19, 1896, commemorating the surrender of Cornwallis at Yorktown, there was planted in a bended bow, 450 feet in length, a tree from each of the original thirteen States. New Hampshire is represented by a maple; Massachusetts, an elm; Delaware, a red maple; Pennsylvania, a cedar (from entrenchment at Valley Forge); Georgia, a catalpa; Virginia, a tree from the grave of Thomas Jefferson; Connecticut, an oak; New Jersey, a linden (from Washington's Headquarters); Rhode Island, chestnut; New York, white oak. The exercises were under the auspices of Sequoia Chapter of the Daughters of the American Revolution.

Strawberry Hill, capped by an observatory, looms on the view from every portion of the park. Its top is 426 feet above sea-level, a wide driveway winds about it to the summit, and its base is circled by Stow Lake, the artificiality of the construction of which has long ago been hidden by nature's kindliness. Into the lake

dashes the water of Huntington Falls, where again all sense of the artificial has been washed away. The lake is spanned by picturesque bridges, skirted by a drive, and the two miles of sheltered water furnish a fine place for boating.

Prayer-book Cross, on an adjoining eminence, was the gift of George W. Childs, the Philadelphia philanthropist, and was erected under the auspices of the Episcopal diocese of northern California, to commemorate the day, June 24, 1579, when Sir Francis Drake and his bold adventurers landed in Drake's bay, within sight of the cross, and celebrated the service of the English Church. The design is a copy of the ancient Celtic cross at Monasterboic, and the top of the capstone is forty feet from the ground. And now the Pacific ocean breaks upon the view with its countless waves stretching to strange, far lands. Here the park finds a fitting boundary. There is a fine hard beach along which has been constructed a wide boulevard, where the sound of the breakers is continually in the ear.

Turning to the right and passing a steel pier whence the sea water is pumped into the city for the bathing pavilions, the visitor comes upon the Cliff House—a hostelry which hangs right over the ocean's surges, and looks down upon the Seal Rocks, where bask and bark hundreds of great sea-lions.

Many of the world's great men and women have visited this famous resort. From it there is a fine view of Point Bonita and the North Heads, Point Reyes, far to the northward, Point San Pedro to the south, and in clear weather the Farallones de los Freyres (the

Lighthouses of the Brothers)—a little group of six precipitous rocks twenty-six miles out to sea, where the sea birds nest and breed and the sea-lions keep up an incessant roar. The largest of this island group is nearly a mile across and rises 348 feet, with a lighthouse on top of it. The sea waves surging into a cave are made to keep a fog horn in constant moan. The eggs of the sea birds add variety to the city's well-stocked markets.

The Cliff House itself is on the extreme tip of Point Lobos, which forms the south head of San Francisco Harbor. People sit for hours looking out from its rooms and verandas at the ever-changing picture of the sea. The original Cliff House was built in 1863. On July 14, 1886, the schooner Parallel, carrying 80,000 pounds of dynamite, was wrecked on the near-by rocks, and the explosion of the dynamite badly damaged the old hostelry. Then on December 25, 1894, fire wiped out the ancient landmark. The present chateau-like structure was built by the late Adolph Sutro, whose home and grounds on the bluffs above were always open to visitors, and are known as Sutro Heights.

Near at hand are the Sutro Baths, the most superb of all such establishments. Within are galleries in which a very good collection of curios peeps from amidst palms and tropic plants. About the swimming tanks are arranged like an amphitheater seats for the accommodation of 7,400 persons. There are 517 private dressing-rooms and numerous club and family apartments. The structure is 500 feet long and 254 feet wide, and the bathing tanks hold 1,805,000 gallons

of water, thrown directly into them by the ocean's waves. In the largest tank, 300 by 175 feet, the water is kept just at the temperature it comes from the sea, while in other tanks it is heated to suit varying tastes.

In abrupt contrast to Golden Gate Park, with all its art and beauty, but no less interesting to the visitor, was the "Barbary Coast," a bit of San Francisco that was for the most part destroyed by the catastrophe and will have no place in the rebuilt city. Here is a good description of this picturesque region as it was prior to the earthquake:

"A group of sailor men stood in the doorway of an outfitting store, talking in loud thick voices. 'You're just a good-for-nothing coot,' cried one brawny fisted sea dog to a companion disappearing around the corner. The dim lights shone feebly down the dark street. Arc lamps on the docks illuminated the rigging of the many masts along shore. On the window of a saloony-looking restaurant was painted 'Sanguinetti's,' and three Bohemians doing the Barbary Coast entered. The master of ceremonies stood behind his counter—red-faced, bullet-headed, bull-necked, with one eye gone and the other betwixt a leer and a twinkle. He was in his shirt sleeves with a sort of apron tucked about his ample form. Two darkies strummed a banjo and guitar, singing the while hilarious coon songs. We stepped noiselessly over the sawdust floor to a table at one side and ordered clam chowder, spaghetti, chicken with garlic sauce, and rum omelette, with Italian entrees and a bottle of waterfront claret for good cheer.

"A buxom middle-aged lass of heroic build was so

affected by the strenuous twanging of Old Black Joe that she got up and danced. Everybody joined in the songs; everybody talked to his or her neighbors, sans ceremony. There was an ex-policeman present with his best girl, the captain of a bay schooner, a tenderloin politician or two, and several misses who scarcely looked like school marms as they warbled coon songs and sipped maraschino.

"After dining, we dropped into 'Lucchetti's' next door, where it is the custom to lead your partner through the mazes of the waltz when dinner is over and before going uptown to see the marionette show. One feels safer on the streets of this quarter at night when he elbows a good companion. No doubt there is no danger, but stories of sand-baggers, and of boarding masters armed with hose pipe and knock-out drops for shanghaiing luckless wayfarers and smuggling them off to some deep-water ship outward bound, will crop up in the mind of the lonely pedestrian.

"By day, the waterfront is a scene of romantic interest. Every weatherbeaten vagabond who walks the street is itching to tell you stories of the ends of the earth. Every grimy grog shop has its quota of yarn spinners who like nothing better than an excuse to talk and tipple from morn to dewy eve. Go where you will along those miles of docks, an endless rim of shipping reminds you of the lands across the sea; and every wedding guest is in the clutches of some ancient mariner.

"Schooners with five masts all of a size, and with scanty upper rigging, are discharging pine from Puget Sound. English steel ships deep laden with coal from

A GROUP OF CHURCHES, SAN FRANCISCO.

Map of
SAN FRANCISCO
AND THEREABOUT
Published by
THE CALIFORNIA
PROMOTION
COMMITTEE
of
SAN FRANCISCO
Scale
Six miles to 1 inch
SOLANO
CONTRA COSTA
MARIN
SAN MATEO
SANTA CLARA
ALAMEDA
SAN FRANCISCO BAY
San Pablo Bay
Suisun Bay
Vallejo
Benicia
Martinez
Pinole Pt.
Pt. San Pedro
San Rafael
Mt Tamalpais
Sausalito
Pt. Bonita
Pt. Diablo
Golden Gate
Pt. Lobos
Cliff House
Fort Point
Angel I.
Alcatraz I.
Pt. Blunt
Pt. Isabel
Berkeley
Oakland
Alameda
San Leandro
Hayward's
Russells
Decoto
Niles
Centerville
Irvington
Newark
Mowry's
Farm Springs
Alviso
Milpitas
Agnews
Mayfield
Palo Alto
Menlo Park
Fair Oaks
Redwood City
San Mateo
Burlingame
Millbrae
Pt. San Mateo
South San Francisco
San Francisco
Pt. San Pedro
Pt. Montara
Half Moon Bay
Purissima
Woodside
Stanford University
Mountain View
Sunnyvale
Lawrence
Santa Clara
College Park
San Jose
Los Gatos
Saratoga
Walnut Creek
Concord
Martinez
Port Costa
Crockett
Carquinez Straits
Vallejo Jc.
Goodyear
Suisun
Fairfax
San Anselmo
San Geronimo
Pacheco
Ignacio
Petaluma Pt.
Mare I
Vallejo
Sobrante
Pinole
Rodeo
Tormales Bay
Richmond
Red Rock
Pt. Richmond
Southampton Shoal
Pt. Brooks I.
San Quentin
Corte Madera
Larkspur
Kentfield
Ross
Marin I.
The Brothers
San Pablo
Pt. San Pedro
Briones
Las Trampas
Moraga
Orinda
Lafayette
Bryants
San Ramon
Danville
Livermore
Pleasanton
Sunol
Mission Pk.
Colma
Cemeteries
Boden Shoal
Merritt
Peralta
Elmhurst
Melrose
Fruitvale
Dougherty
Haywards
Russells
Decoto
Niles
Centerville
Irvington
Newark
Mowry's
Farm Springs
Alviso
Milpitas
Agnews
Mayfield
Palo Alto
Menlo Park
Fair Oaks
Redwood City
San Mateo
Burlingame
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Pt. San Pedro
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Port Costa
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Mission Pk.
Colma
Cemeteries
Boden Shoal
Merritt
Peralta
Elmhurst
Melrose
Fruitvale

Wellington lie alongside the wharves. Yonder is a clumsy old square Sacramento River steamer with stern paddle wheel and double smokestacks. A rakish brig from the South Sea Islands crowds up alongside of a stumpy little green flat bottom sloop which plies on the bay.

"Sparrows chatter on the dusty wharf and scarcely budge for the heavy dray, drawn by ponderous Norman horses that shake the planks beneath them as they thunder along. Donkey engines rattle and clatter at unloading coal into cars on bridges leading across the street to the huge grimy coal store-houses. Teamsters pass with big lumber trucks and wagons loaded with sacks of grain. A group of heavy-set, stolid coal passers shuffles by. Idle beach combers and wharf rats with sooty faces lounge on lumber piles and stare vacantly at the scene.

"A vista through the shipping shows the steely blue water of the bay with a lavender-gray background of fog. There is a medley of schooners, scows, tenders and tugs along shore and a black, three-skysail Yankee clipper ship, the queen of them all, anchored out in the stream. A whirl of sawdust comes with the salt breeze; a tug toots as it passes, dock engines gasp and pant, vans rumble past, and thus commerce thrives on the grit of the waterfront.

"Great grim steamers lie in narrow berths loading or discharging—the tramp from Liverpool, a Panama liner, monster boats for South America, a big black Australian mail ship and others for China or Japan. White transports with buff funnels striped with red, white and blue, tell of the Philippines. A steamer is

just in from Nome with returning miners, and another is billed to sail in the afternoon for the inside passage to Alaska.

"The most picturesque spot on the waterfront is Fisherman's Wharf. Here the Greek fishers moor their little decked boats rigged with graceful lateen sails. One must be up betimes to see them to advantage, for the fisher folk are early birds. Their brown three-cornered sails may be seen dotting the bay at all hours, but the return of the fleet at sundown, like a flock of sea birds scudding on the wind to their roost, throws the spell of the Mediterranean over this far western haven. Although some years have elapsed, I still have vivid recollection of a conference at five in the morning with a captain and crew of one of these boats. The men were boozy and sleepy as we talked, in the little waterfront saloon, of our prospective trip to the Farallones, and they appeared so stupid that we had grave doubts concerning their ability to navigate a boat. We found the long double wharf crowded with perhaps a hundred fishing boats, pointed stem and stern, decked, and with their long cross booms on the masts making an unusual effect. A few bronzed fishermen in blue shirts, rubber hip boots, and bright sashes, were at work at the first peep of the sun, washing and hauling in a seine to dry or cleaning off the decks of their boats. The men proved to be skilled sailors despite the bad water-front whisky, and at the turn of the tide we sped away under a brisk head wind, bound out through the Golden Gate."

CHAPTER XXIII

CITY OF BEAUTIFUL SUBURBS

Country Around San Francisco Like a Great Garden, Dotted With Charming Towns—Lovely Hills and Valleys of San Mateo County—Magnificent View From Mt. Tamalpais, the Watch Tower of the Pacific—Oakland the Prosperous and Berkeley the Fascinating.

All about San Francisco, north, south and east, lies a country that is like a great park and garden, and that is studded with beautiful towns, many of which suffered severely from the earthquake. A writer, before the catastrophe, described some of this country as follows:

"Occupying as it does the end of a peninsula flanked by ocean and bay, San Francisco has but one direction for expansion, but one outlet by land—to the southward. Here extend the hills and valleys of San Mateo County with well-kept farms and prosperous villages and towns. Here is Burlingame, where so many San Franciscans of wealth and taste have built country homes, adding to the charm of nature the arts of the architect and landscape gardener. There are miles of level park-like valley land here where graceful, wide-spreading oaks beautify the plain, revealing between their masses of verdure vistas of blue mountain ranges. In the cañons of these mountains, and even up on some

of the heights where the salt breeze and fog drift in from the sea, are superb forests of redwood. I recall with peculiar delight the stage ride over the mountains from Redwood City to La Honda, down into the deep dark glade where the solemn shafts of the forest rise like worshipers of the light.

"In the warm valleys of San Mateo County, sheltered from the ocean wind, are the market gardens for supplying San Francisco with vegetables, and flower gardens for providing the wealth of bloom and fragrance which makes the city florist shops the delight of all who enter or even pass their doors. The Crystal Springs Lakes and San Andreas reservoir in the mountains of this district are the sources of San Francisco's water supply, enough, with other available springs, to furnish water to a million people.

"In one of the broad sheltered valleys of this beautiful country of oaks and vineyards lies the Stanford University. The inspiring example of a multimillionaire devoting his entire fortune to founding a university in memory of his only son, and the subsequent devotion of his widow in carrying out in every detail the wishes of its founder, has made the University world famous. Its beautiful Spanish architecture, fitting so well the site, with groups of low, tile-roofed buildings around an inner and outer quadrangle, has done much to create an atmosphere for the University, and its president, David Starr Jordan, has shaped its work on broad and noble lines. From an initial class of four hundred and sixty-five students, the attendance has grown in ten years to thirteen hundred. The presence of two great universities within

a radius of thirty miles of San Francisco, with distinctive ideals, with strong individual presidents, the one emphasizing the scientific spirit of investigation, the other the Greek spirit of culture, but both broad and liberal in their views, is one of the great influences, nay rather the great influence in shaping the future of San Francisco. The rivalry in football and athletics, in oratory and scholarship, between the two universities, keeps both on their mettle. Each helps the other, and both work for what is highest and best in the life of the State.

"From Stanford University and the academic town of Palo Alto close to it, a ride of a few miles on the train takes the traveler to San Jose at the head of San Francisco Bay. This city is fifth in population in California, and is noted for its park-like streets shaded by spreading foliage trees or ornamented with rows of palms, its many substantial buildings and general air of prosperity and thrift. It may well appear so with the great fruit country that surrounds it, where some of the finest prune orchards of the State are to be found, as well as acres and miles of other varied deciduous fruits, all cultivated to the last degree of perfection.

"A daily stage connects San Jose with the Lick Observatory on Mount Hamilton, where, with the aid of the second most powerful telescope in the world, a small band of devoted astronomers have made some of the most important discoveries of modern times in the investigation of the heavens. Work of far-reaching importance has been done here on the finding and observing of double stars, on photographing nebulae, in

spectroscopic astronomy, the detection of comets, and in many other fields of research. The stage ride of twenty-seven miles to the observatory is over a typical section of the Coast Mountains, the view ever enlarging until the topmost point is reached with its almost unparalleled expansiveness of outlook. The whole snowy range of the Sierras extends far off across the broad plains of the Sacramento and San Joaquin. Mount Diablo, and Mount Tamalpais lie to the north, and past Loma Prieta to the southward the ranges of southern Monterey County are visible. San Francisco Bay, the fertile Santa Clara Valley with its settlements, its orchards and cultivated fields, and many near cañons and wrinkled hills are below us. What sunsets one may view from this vantage point, followed by a peep at some planet through the great glass, and glimpses of that illimitable star world so wonderfully revealed! Then there is the night stage ride down the mountain, bowling around curves at a lively trot, and descending into the darkness and solitude of the cañons!

"I think of Mount Hamilton during the lovely weeks of spring-time when baby-eyes gladdened the slopes, when shooting stars and scarlet larkspurs and lupines were waving in great masses of radiant bloom, when the birds were singing and courting, and the lonely mountain where man holds communion with the stars, thrilled with that loving touch of nature which makes all the world akin."

Of the country to the north, about Mt. Tamalpais, the same writer says:

"The whole Marin County peninsula is a great natu-

ral park with villages and pastoral country interspersed. Would that it might be reserved as such for all time! In its sheltered valleys grow the noble redwoods, the sublimest of forest trees save only their compeers of the Sierras. In the secluded Redwood Cañon they still stand in their pristine glory—stately shafts of majestic proportion lifting high their evergreen foliage. Mill Valley shelters much charming second growth redwood where simple cottages nestle amid the trees. Most unique of these are the Japanese houses built by Mr. George T. Marsh.

"From this point the mountain railroad zigzags up Mount Tamalpais. After leaving the shade of the redwood and the fragrant laurel dells, it turns and twists up the mountain side, coiling in a double bow knot, curving and winding along ledges in search of a uniform grade. The view broadens below—first the bay with indentations and peninsulas, islands and distant hills. The city comes in view across the Golden Gate, and presently the ocean is sighted. As the stout little oil engine pushes up still higher, we see the twin peaks of Mount Diablo looming up nobly to the eastward back of the Berkeley Hills. Far to the southeast swells Mt. Hamilton on a high ridge, where the great eye of the world watches silently the other spheres. To the northward, fifty miles away, we see Mount St. Helena grimly rising. The train takes us to the comfortable Tamalpais Tavern, from which point the summit is distant but a ten minutes' walk. The wind rushes wildly over the ridge. At our feet stretches the ocean, with the Farallone Islands seemingly close at hand. Turning we look down on the

broad expanse of the bay, on hills and mountains, towns and cities. This varied view of land and sea, compassing a hundred miles of the most diversified landscape of California, must be seen many times to be thoroughly appreciated. Sunrise over the San Joaquin Valley; the red orb dipping down into the fiery band on the ocean; moolight, and the witchery of the fog, when the beholder sits like an eagle on his crag and sees the tumultuous cloud-floor spread below—all these are but passing phases of the splendors of nature which may be seen from this great watch tower of the Pacific.

"At the foot of the mountain, nestling amid the valleys or in cosy nooks on the bay shore, are many charming suburbs of San Francisco. San Rafael is the largest of these and is frequented by many people of wealth as well as by a numerous population of moderate means. Sausalito, on the shore, is a meeting place for yachtsmen, while Belvedere is famed for its night water carnivals. Both towns have many picturesque houses on hillsides overlooking the bay. A half-hour's ride on the ferry takes the suburbanite from San Francisco to his home. There he may enjoy nature, forgetting the cares of business and the stress and strain of the city, calmed by the expansive view of bay and distant hills, and enlarged in spirit by communion with the beauties far spread at his feet."

Turning to the eastern shore, he writes:

"Oakland, with its estuary for deep-water shipping, with ship yards for the building and repairing of vessels, and every facility for the immediate transfer of freight from ship to car, is peculiarly well located as

a commercial center. Two long piers, or 'moles' as they are called, reach out into the bay to carry Southern Pacific overland and local trains as near as possible to San Francisco, and a third pier is now nearly completed for the electric car service of the Santa Fe. Alameda County, of which Oakland is the metropolis, is one of the most productive districts of the State. It is famed for its vineyards, its hop fields and orchards. Indeed, all fruits and vegetables thrive in its equable climate. The project of tunneling the hills back of Fruitvale, thus affording easy access to the sheltered valleys beyond the Coast Range, is now nearing consummation, and will become an important factor in the city's development. Already Oakland is the third city in the State in population, its inhabitants numbering about seventy thousand. It has many charming residences tucked away amid semi-tropic gardens, the district about Lake Merritt being especially noted for its substantial homes.

"Alameda, with over sixteen thousand inhabitants, lies to the south of Oakland on the low land, which, by the recent cutting of the tidal canal, has been converted into an island. Its well-kept macadamized streets and many fine homes embowered in shrubbery and vines, make it a favorite residence town for an increasing number of people who do business in San Francisco. Alameda is a headquarters for the yachtmen and canoeists of the eastern shore, while its salt-water baths are an attraction to those fond of aquatic sports.

"Berkeley lies upon the hills opposite the Golden Gate. Its homes command the whole glorious sweep

of bay and shore. Tamalpais rears its finely chiseled profile to the right of the Gate, and San Francisco on its many hills lies to the left. The selection of this site for a State University was an inspiration on the part of its founders. Just where a beautiful cañon in the Berkeley hills descends to the plain, with classic laurels fringing its upper slopes, and the patriarch live-oaks sanctifying its lower levels with their gnarled gray trunks and dark canopies of verdure, upon the gently rising slope which leads up from the bay shore some two miles distant, a tract of two hundred and eighty-five acres has been set apart for the University of California. The Berkeley Hills rise abruptly back of it to the crest of Grizzly Peak, some fifteen hundred feet high, and upon the three lower sides of the grounds extends the town.

"Wherein lies the charm of Berkeley? Is it in the vine-covered cottages and profusion of flowers which at the height of the season make the town seem decked for a carnival? Is it in the glorious prospect of rolling mountains and far-spread bay? Or is it the people, drawn from near and far by that great magnet, the University? We old-timers complain that the town is getting crowded and no longer has the rural tone of a few years ago. But what matter? Ceaselessly the houses go up, new ones springing into existence on every hand, and the only consolation is that on the whole the architecture is steadily becoming simpler and better. There is probably no other spot in California where so many really artistic homes are assembled. For those who like the sort of people attracted by a great institution of learning, no society could be

more delightful than is to be found here. People are flocking to Berkeley not only from various parts of California, but from many sections of the East. They hear of its wonderful climate, softer than San Francisco, but favorable for work all the year round, the most truly temperate climate imaginable. They hear of its homes, its people and its accessibility to the great city. They come to educate their children at the University and once here never leave save by compulsion."

CHAPTER XXIV

WHY SAN FRANCISCO IS GREAT

Story of the City's Awakening to New Life and Prosperity After the Spanish War—Gateway to the Orient—What the Acquisition of the Philippines and Opening of China Mean to It—Metropolis of a Marvelously Rich but Strangely Isolated Country—Natural Resources and Climate Unsurpassed.

San Francisco was struck down just in the period of the greatest prosperity it had ever known. After some years of dullness the city had awakened to new efforts, new growth and a rapidly increasing commerce. This revivification was due to several causes —the completion of certain railroads, the opening of the Alaska gold fields, and especially the Spanish war and the acquisition of the Philippines. The awakening of the Pacific Coast metropolis is thus described by an accomplished writer:

"During a good part of the decade immediately preceding the dawn of the new century, a strange lethargy seemed to have settled upon the city by the Golden Gate. To the northward, Seattle and Spokane were forging ahead with giant strides. To the southward, Los Angeles had grown from a pueblo to a metropolis. In San Francisco, public spirit was at a perilously low ebb. Of local pride there was but the faintest glimmer. Population was at a standstill; houses were for

rent. Merchants took what trade came their way, but seldom reached out for more. Staggered by the crash of '93, the city seemed unable to recuperate, or made a recovery so slow that people shook their heads and spoke disparagingly of the place.

"What was the matter with San Francisco? Why did it rest supinely upon its many hills and let the world take its own course? The railroad was commonly blamed for all the evils arising from the difference and indifference of public opinion on local questions. The Octopus, as that Quixotic champion of the city's rights, Mayor Sutro, dubbed it, was indeed a power with tentacles far spread over the State, and permeating many branches of civic life. But there were other factors which retarded the growth of San Francisco, chief among which was the lack of public spirit among the citizens.

"It is a more agreeable field of speculation to note the forces which have been instrumental in changing all this—for a change has indeed come over the community. One of the earliest symptoms of an awakened civic pride was the action of the Merchants' Association in reforming the work of cleaning the streets of the business district. At about this time a ripple of enthusiasm was caused by the completion of the San Joaquin Valley Road and its absorption by the Santa Fe System, which insured a competing overland line to San Francisco. Events for arousing the city crowded thick and fast about the end of the century. The Klondike gold excitement stimulated trade and travel with the North.

"Years before Dewey's guns thundered at the gates

of Manila, far-sighted men had predicted that the strife for commercial supremacy was destined to shift ere long from the Atlantic to the Pacific, but their prophecies had fallen upon deaf ears. The Eastern States took little note of Pacific Coast events, save to chronicle a prize fight or a sensational murder. But when regiments of soldiers came pouring into San Francisco on their way t the Philippines, the attention of the nation was cen ·ed here. It began to dawn upon men, both at hom.e and abroad, that this was the port of departure not merely for the Spanish Islands of the Pacific, but also for the Orient beyond. The strategic importance of San Francisco was impressed upon the dullest minds. Complications in China requiring the presence of American troops there, served but to deepen this realization. The moving of an army of seventy thousand men to and from these remote regions, the presence of fleets of transports in the harbor, the stimulus of trade in new channels, all served to rouse the dormant city.

"Simultaneously with these stirring events came the reorganization of the Southern Pacific Railroad. As a part of the great Harriman System, a policy of cooperation with the people in the building up of the State has been vigorously pushed. It is now apparent on every hand that the interests of the railroad and of the people are one. If the arteries of commerce are obstructed, will not the tissues of the State wither? Or conversely, if the body politic be not sound and strong, will it not inevitably impair the circulation of trade? To grasp this fundamental proposition of the organic connection between the people and the avenues

of commerce, and to work to make this relationship a just and harmonious one on both sides, is the first essential to the prosperity of a country. Especially is this so of a region which from its vast isolation is dependent upon commercial relations with remote parts of the land. The importance of this new spirit cannot be overestimated in an analysis of the factors which are now at work in rejuvenating San Francisco. The withered staff of Tannhauser has burst into leaf, and the dead past shall bury its dead.

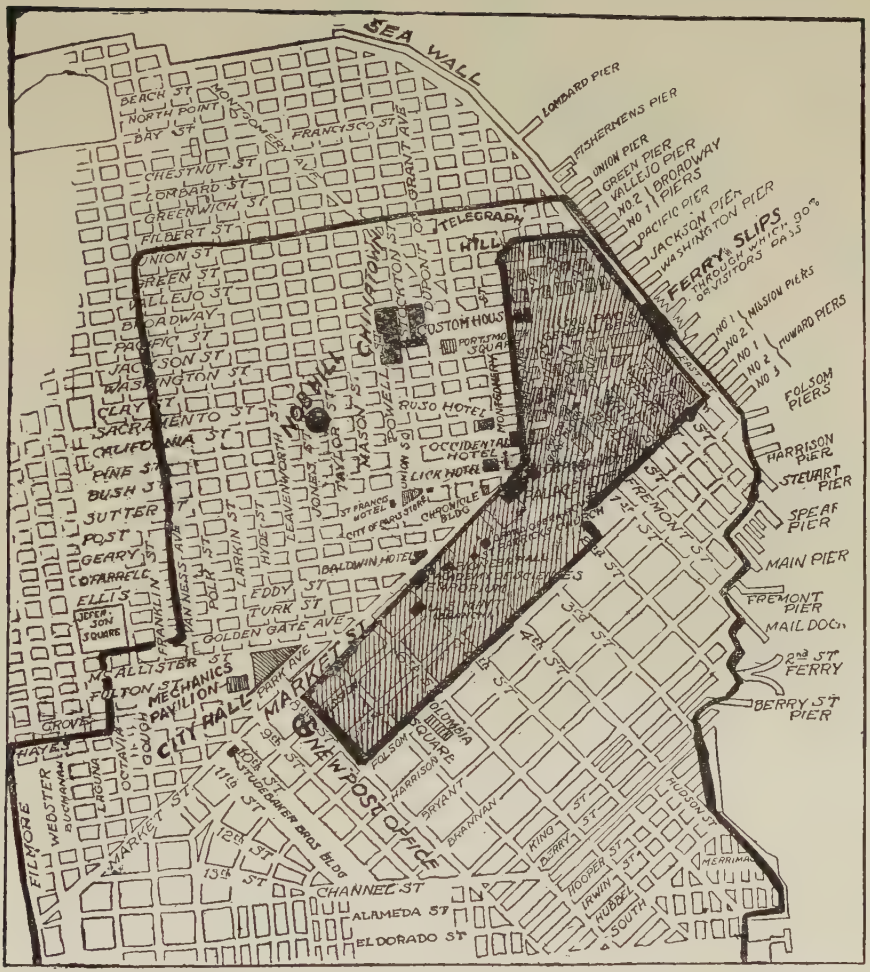
"The new charter of San Francisco is constructed on the most advanced ideas of municipal government, and already great benefits are coming to the city from its operation. Since its adoption, large sums of money have been appropriated for extending the park system and for much needed additional school buildings. San Francisco occupies the proud position of a municipality practically without civic debt.

"In the prosperity which has come with the new century, San Francisco has shared to the fullest measure. Capital has been attracted from various parts of the country. The street railways were purchased by a Baltimore corporation and their relationship with the Southern Pacific Railroad terminated. New buildings were commenced in various parts of the city—great substantial steel-frame structures of stone and terra cotta. Whole blocks of these dignified, well proportioned buildings are going up on Mission Street, replacing shabby rookeries; the splendid new Mutual Bank Building of gray stone and steep red tile roof, towers up with the other fine structures at the corner of Market and Geary Streets. Facing Union Square,

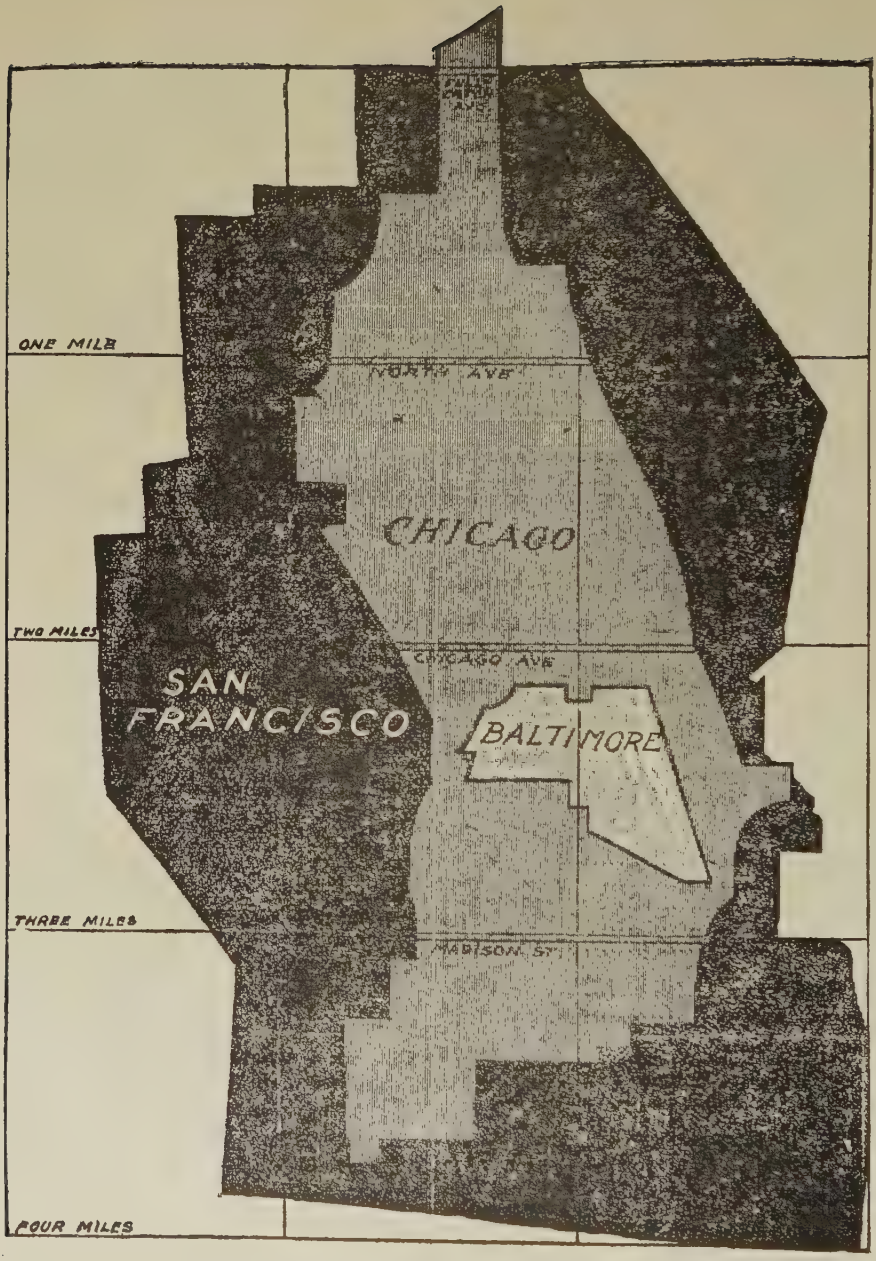
a block away from the big modern building of the Spring Valley Water Company, the steel frame of the new Saint Francis Hotel is climbing higher and higher, and the stonework follows with wonderful celerity. Over on Market Street at the corner of Powell, on the site of the old Baldwin Hotel, and opposite the great stone Emporium, one of the largest and costliest buildings of the city is now being erected for store and office purposes.

"Just in the nick of time, the magnificent new marble postoffice is being completed up on Mission Street to replace the miserable structure down on Washington Street which for so many years has served as a makeshift. A magnificent hotel is to be built immediately by the Fair estate on the California Street heights. These are but a few of the more striking business buildings now being pushed to completion. In one week, according to statistics compiled, six million dollars' worth of buildings were commenced in the city. A gratifying feature of the work is the simplicity of design followed in nearly every instance. Costly materials and the most perfect of modern workmanship, combined with good proportions on broad lines, are bound to make the new San Francisco an eminently satisfying city architecturally.

"All this building is not the result of a speculative boom, but the response to a real demand for more accommodation. People are coming to San Francisco from hither and yon, to settle in the community. New business enterprises are being started, old ones enlarged. Vast sums are being expended upon railroad improvement of lines centering here, and immense



Map of the burnt district. The heavy shaded part shows the result of the first day's fire, the black line after it had burnt for two days.



AREAS OF THREE GREAT FIRES.

Map showing the comparative size of burned districts in the San Francisco, Chicago and Baltimore conflagrations.

steamships are built or building for trade with this port. Since the days of '49 such an impetus of growth has not visited San Francisco.

"That the city, and indeed all California, has awakened to the opportunities now arising, is shown by the recent organization of a Promotion Committee composed of representatives of the various commercial organizations of the city and State. Strangers are made welcome at their comfortable headquarters on New Montgomery Street, and information relative to the resources of California is given to all who are interested.

"It is almost an axiom of civic life that the permanent well-being of a city depends upon the prosperity of its adjacent country. Never did any land have more to offer the home seeker than has California. The orange grows to perfection in valleys a hundred miles north of San Francisco, where it ripens by November, a month earlier than in any other part of the United States. Figs thrive over an even wider area than the citrus fruits, and experiments recently made in shipping them fresh to Chicago and New York have proven a success. California olive oil commands a high price on account of its freedom from adulteration, and ripe olives are becoming a much relished food. The prunes of San Jose and the raisins of Fresno have acquired world-wide fame, while California wines compete successfully at international expositions with their French predecessors and rivals. The improved railroad facilities have made it possible of late to ship early fresh vegetables, as well as all of the fresh fruits to the Eastern market. Indeed shipments to Europe

of fresh California fruit are now regularly made. With the railroad back of the people a limitless market will await the horticulturist, and his returns will be proportionate to his labor and skill.

"Many inexperienced people have imagined that fruit growing in California was all attended to by nature. Young Englishmen have come here, lured by tales of prodigal fertility, and have smoked their pipes while their ranches went to perdition. Horticulture in California requires knowledge and hard work, much as anything does in this world that is worth doing. The best results are to be had on irrigated land, and small holdings are now proving more successful than the large ranches of the past, but patience, skill and grit are needed for the work. The passage by the American Congress of the Newlands Act has called the attention of the whole country to the possibilities of development in the West through irrigation. The lakes and streams of the Sierra Nevada Mountains contain enough water to make fertile all the cultivatable valleys of the State, and it is now only a question of years before this will be done. The great wheat fields of the Sacramento and Son Joaquin Valleys, cultivated with gang plows and harvested with machines that do the whole process of cutting, threshing and sacking, are rivaled only by the vast prairies of the Mississippi. Another industry that is assuming large proportion is the manufacture of beet sugar, which is carried on in parts of California on an immense scale.

"The old-fashioned placer mining—the washing of gold out of the sand of river beds with a rude wooden cradle—is no longer profitable as in the days of '49,

but during the past five years over fifteen million dollars annually has been mined by the improved methods now in vogue, and there seems to be no diminution of the supply. The great stamps of the Placer and Nevada County mines are thundering away at the ore, while dredges scoop up the sand of river bottoms and sift out the gold as it passes through.

"In manufacturing lines, San Francisco has been greatly hampered by the lack of coal mines within convenient distance, although a firm like the Union Iron Works, which can build such battleships as the Oregon and the Ohio, need not take second place to any builders in the world. Up to the present time coal has been king; but in this as in other matters an era of change is at hand, and Old King Coal seems destined to take a back seat. His rival to the throne is none other than that modern Zeus, the wielder of thunderbolts, which we call the electric motor. For many years the use of water as a motive power has been out of date, but the present cycle of progress brings it once more to the front. Over the valleys and hills of California march silent processions of poles carrying heavy wires upon large insulators. The lightning is being harnessed to the waterfalls of the mountains, and the mysterious currents generated in the far away heights by the singing streams which pour their current down the rocky slopes, are flashed in a trice to populous centers, there to light houses and highways, to speed cars over city streets, and to turn the humming wheels of industry. In the days to come, manufacturing supremacy shall be determined not by coal mines but by waterfalls. California, with its glorious Sierra

battlement where the snows pile high all winter long, melting in never-failing streams that swiftly course to the valleys, is above all other lands supplied with this natural motive power. The mountain streams shall labor now for man, and sing at their toil. Even into the great city shall penetrate their power, and the smoke and grime of coal shall be replaced by a mightier and cleanlier force.

"Coincident with the perfecting of insulating appliances, making it possible to carry electric currents from the mountains to the sea, has come the discovery and development of seemingly limitless oil wells in various parts of California. The use of oil fuel as a substitute for coal is meeting with the most gratifying success. Railway engines burn it and cinders become a thing of the past. It has been tested upon a large passenger steamer running between San Francisco and Tahiti, with the result that a saving of two hundred dollars a day is effected. Oil-burning freight steamers are plying between San Francisco and the Hawaiian Islands. The terrible work of the stokers is abolished and the decks are no longer grimy with cinders. Within a year all the engines of the Southern Pacific Railway will be converted into oil burners. Dusty country roadways when oiled become like park boulevards. And thus electricity and oil are not only replacing coal but accomplishing far more than the old fuel could do. To be sure the transition has but begun, and vast quantities of coal must still be imported to San Francisco, but when ere long the oil pipe line is laid from Bakersfield to tide water, when J. Pierpont Morgan's new oil company, just organized with a capitali-

zation of twenty million dollars, is in operation, and the new San Francisco Electric Power Company has brought its lines from the mountains to the city, the demand for coal will surely not continue to increase in proportion to the growth of population or of manufacturing industries.

"One other great natural source of wealth California possesses, namely her forests. But every true lover of the wildwood looks with dismay at the recklessness with which this treasure is being squandered. Nor is it by any means a sentimental motive which has actuated the protest against this ruin and waste. The future of California depends upon the conservation of its water supply. Without this the land will become a desert. The forests are the only power which can restrain the impatient torrents from despoiling the land —from rushing down the mountains in freshets and tearing away the soil of the valleys. The forest roots restrain the floods, the arching branches retard the melting snows, and the bounty of heaven becomes a blessing instead of a menace to the valleys. Hence the wisdom of a great series of national parks in the Sierra Nevada Mountains. The hungry saws are ripping up the sublime redwood forests of the coast district— forests as beautiful and impressive as any in the world. One state park of thirty-eight hundred acres in the Big Basin of the Santa Cruz Mountains is already saved, but aside from this the entire stretch of redwood forests is at the mercy of the lumbermen. There should be a chain of such parks up the coast to the Oregon boundary, lest our children grow up to curse us for our sinful neglect of them. San Francisco, awakened,

aroused, building, reaching out, must not be satisfied with accomplishing its own immediate ends, but must remember that it has children who are to inherit the work of its hands."

Such was the status of San Francisco when it was shattered by earthquake and devastated by flame. Her fine buildings were ruined, her enormous business enterprises were checked—but only temporarily. But the city's commanding position as the gate-way to the Orient and its magnificent harbor remained unchanged as a basis for the new and greater city. This pre-eminence of its site was thus set forth by the writer quoted above:

"San Francisco occupies the strategic post of the world commerce of the twentieth century. 'Westward the course of empire takes its way' was a prophecy which has already found fulfillment. The Pacific is the new theatre for the enacting of the drama of the nations. From time immemorial the world has been divided into the East and West, the former of hoar antiquity, conservative, profound, teeming with people, the latter ever young, ever new, following in the march of time, progressive, expanding, peopling new wildernesses, restlessly searching for new worlds of hand or brain to conquer. From time immemorial the West has thriven upon the commerce of the East. Phœnecia, Athens, Alexandria, Rome, Venice, Spain, Holland, England, each in turn has waxed fat and opulent on the commerce of the Orient. It was in the search for the Spice Islands that America was discovered. It was in the determined effort to find a more direct route between Europe and the Indies that

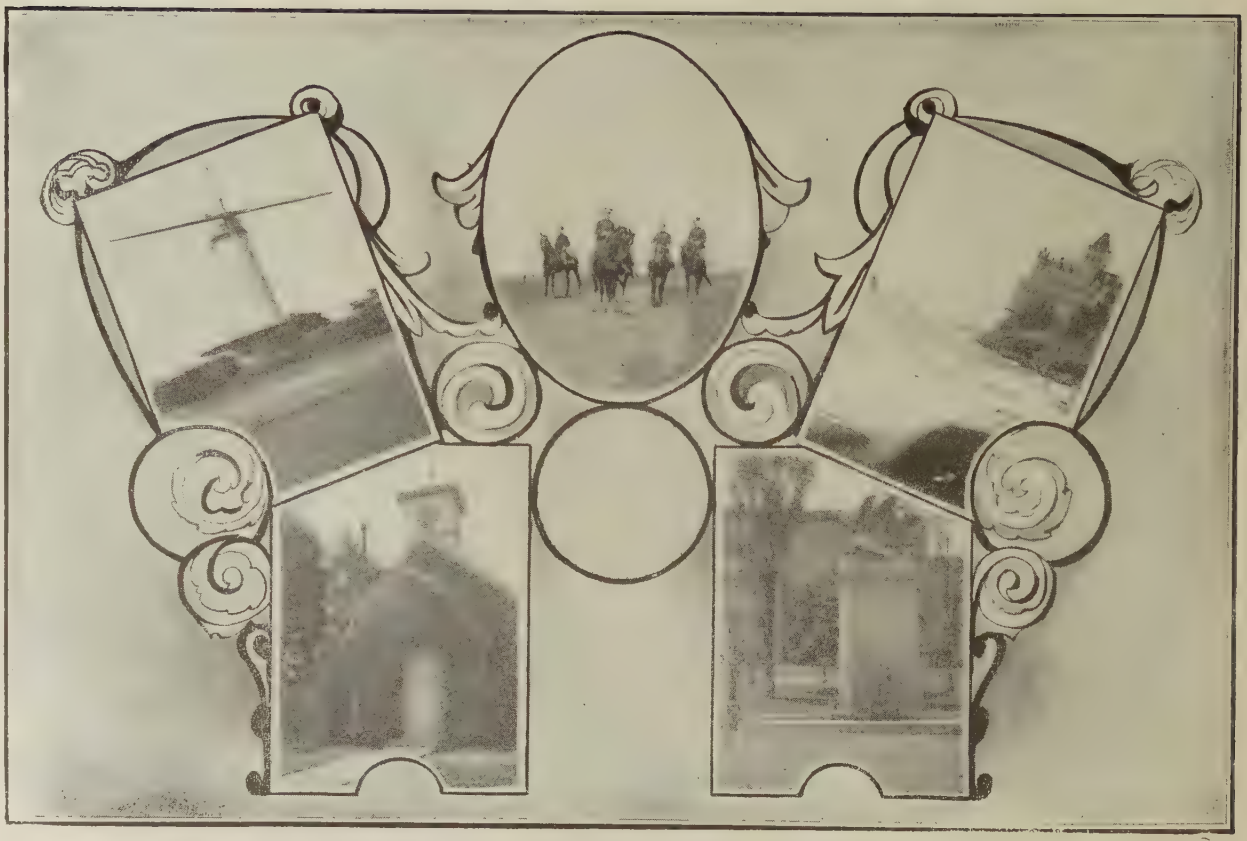
most of the future exploration of America was pushed. It is with the same determination to sweep away every obstacle, however monumental, which separates the Occident from the Orient, that the United States has undertaken the prodigious task of building the Isthmian Canal.

"After all these centuries of effort, a great city has been reared upon the outposts of the western world with a free sweep of sea off yonder to China. The tidal wave of civilization has rolled around the globe. The West has reached its limit, and to go beyond means to cross the international date line into the East. So intent has San Francisco been upon the petty local problems which environed her that she is only now awakening from her lethargy to realize the pre-eminence of her position. Standing upon the rim of the western world, the Orient is before her. She commands the shortest route to the East, seldom blocked by winter storms, and commerce will always go that way. It is the law of following the line of least resistance. Even when the Isthmian Canal is finished, passengers, mail and all perishable freight will go by the quickest way, and the enforced reduction in railroad rates will more than offset any loss of freight business to San Francisco.

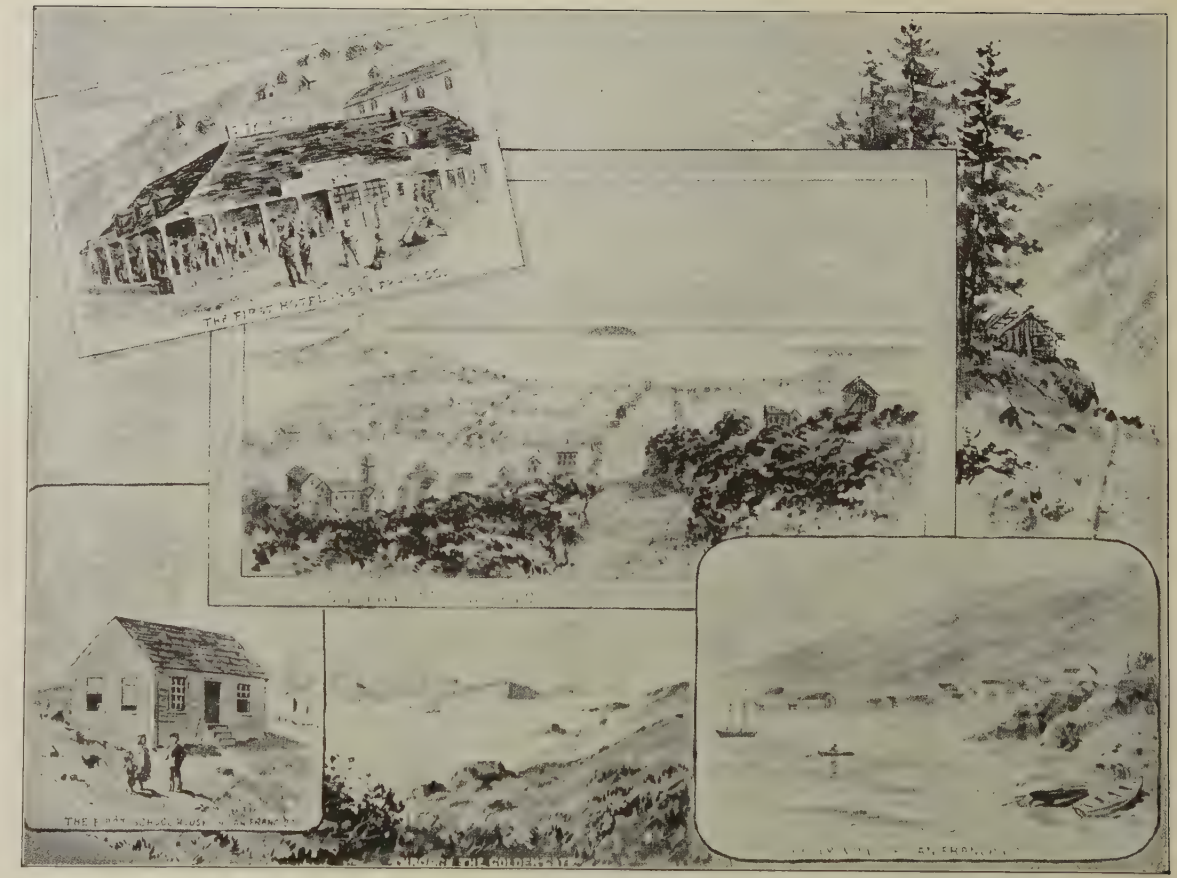
"The railroads are alive to their opportunities in overland traffic. They have so reduced the time that mail and passengers are now carried from ocean to ocean in a little less than four days. The terrors of the desert are set at naught by the triumphs of engineering. Vast sums of money are today being applied to the improvement of road-beds, the straightening of

curves, lowering of grades and modernizing of equipment on the transcontinental lines. Instead of the Northwest Passage, for which the mariners of old sought in vain, applied science has given us the overland passage. So rapid has been the increase of freight business during the past year that the railroads are hard put to supply cars to handle it. The Sunset Limited train runs daily now instead of twice a week, to accommodate the increasing travel. Other railroad lines are seeking entrance to San Francisco from the East. New steamship lines are bringing hither the produce of many shores—of Alaska and South America, Oceanica and Australasia, the Philippines, Japan and China. There were but three regular steamship lines plying between San Francisco and foreign ports in 1895 as against twelve lines today, and the foreign export business has grown from a tonnage of something over fifteen million pounds in that year to over two hundred million pounds in 1901. Our merchants are filling orders for Siberia and New Zealand. Korea and South Africa are being brought within the scope of our commercial enterprise as well as the various countries of Europe.

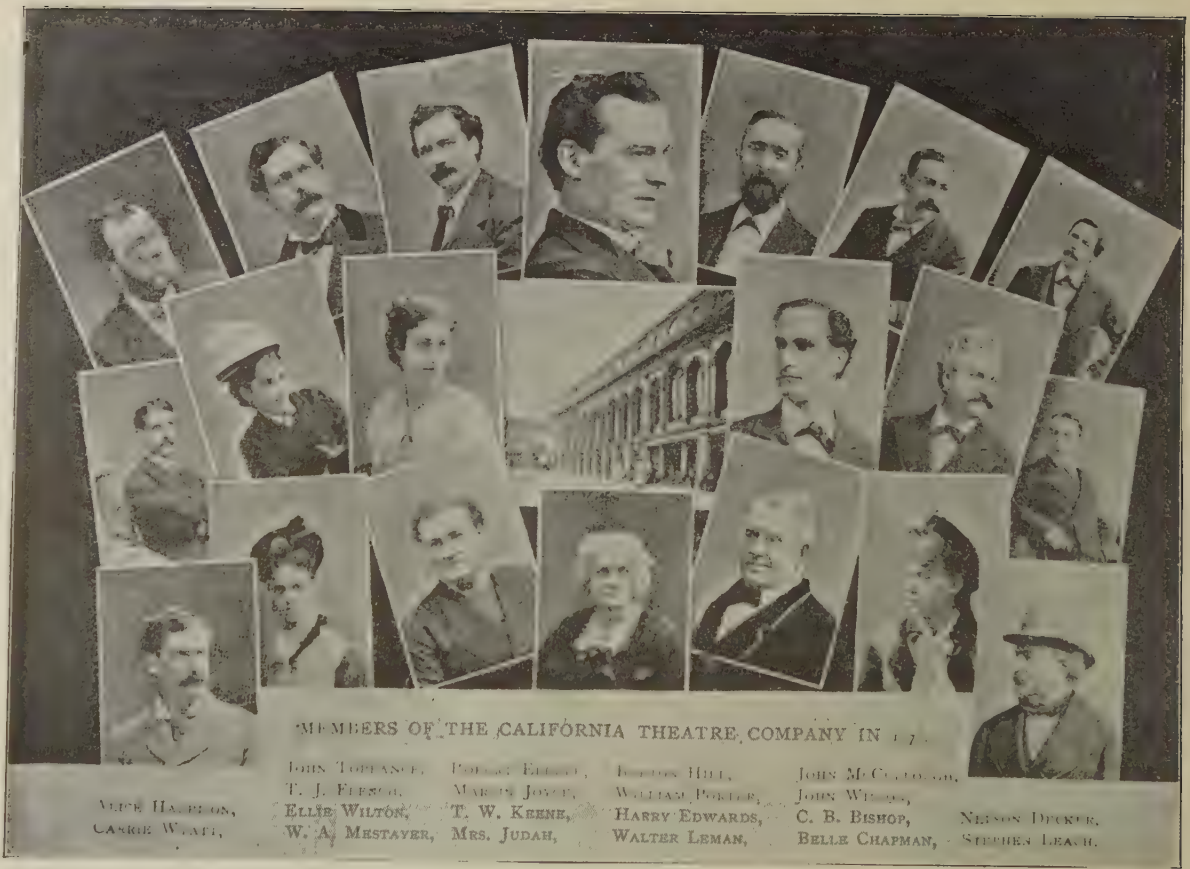
"The great triangle of the Pacific is destined to have its lines drawn between Hong Kong, Sydney and San Francisco. Of these three ports, Hong Kong will have China behind it, Sidney, Europe, and San Francisco, America; and with America for a backing, San Francisco can challenge the world in the strife for commercial supremacy. In the midst of this great triangle lie Hawaii and the Philippines. From the days of Magellan's immortal voyage to the time of Dewey,



A GROUP OF INTERESTING POINTS AROUND SAN FRANCISCO.
These pictures were taken by an actress the day before the fire. Note General Fred Funston and Staff, Cliff House, Etc.



SAN FRANCISCO IN 1848 JUST AFTER THE FIRST DISCOVERY OF GOLD.

SAN FRANCISCO IN 1849 AT THE HEIGHT OF THE GOLD FEVER.

The California Theatre, destroyed in the earthquake, was one of the famous landmarks of the city. The stock company, of which John McCullough was the head, supported in its time every great American and English actor of the period, Booth, Barrett, Edwin Adams, Modjeska, Clara Morris, Janauschek, Adelaide Neilson, Mary Anderson and others. Only four of this famous company are now living, Robert Eberle, Barton Hill, Belle Chapman and Carrie Wyatt (Mrs. Charles Eugene Banks, Chicago).

the Spanish stronghold in the Pacific remained unshaken save by internal dissensions. Today America is roused to a new charge, and if only the love of liberty which has so long thrilled the nation can remain the dominating spirit in our disposition of these populous islands, we shall have a stronger hold upon the vantage ground on the outposts of the Orient than could ever be gained by force of arms. If we are bound to these people by ties of mutual interest, the islands will be to us a source of legitimate profit and a link in the chain of commerce with the Orient, but if we seek to rule them with a master hand, they will become a drain on our pockets and a potent factor in lowering our national tone. The future of San Francisco is deeply concerned in this matter, and the present drift of events seems happily in the right direction.

"While San Francisco is thus indebted to its commanding position as toll taker on the world's highway, the city, in common with all California, is also favored by isolation. Between the snowy crests of the Sierra Nevada Mountains and the ocean, is a strip of land of extraordinary fertility. Here grow the largest forest trees of the world, the largest fruits, the most abundant crops. Water, in some parts of this region, must be artificially brought to the land, but irrigation is at once the oldest and the newest method of assuring a harvest. All ancient civilizations were in countries which depended upon artificially watered crops, and California is but another instance where history is repeating itself.

"Beyond this garden, for hundreds of miles to the

eastward stretches a desert, or, more properly speaking, an arid region of alkali plains and sage-brush hills which can probably never support a dense population. Thus are we of the coast cut off from kinsmen of the East and Middle West. Trains may speed their fastest with mail and freight. Books and magazines may come pouring in upon us in a deluge from New York and Boston, but the physical barrier remains. California, cosmopolitan though it be, thrilling with the same patriotic pride and enthusiasm as the East, is still intensely self reliant. It does not hang upon the opinions of Eastern oracles but makes its own standards. One has but to be inoculated with the California fever by a year's residence to become an enthusiastic victim for life. There is a largeness of horizon here unknown to the Easterner. City men go out on summer outings to climb lofty mountain peaks that would appall a tenderfoot. The stern grandeur of the ocean shores and the vast horizon of Sierra peaks leave their impress upon the race that dwells in such an environment.

"Much has been said and written of the climate of California, but it still remains a fruitful theme. Within the radius of a hundred miles are to be found all sorts of climate, save the greatest extremes of the tropics and Arctics. From the cool moist coast to the dry heat of the interior means but the crossing of a spur of the coast range. From the frostless lowlands to a region of heavier snowfall than is found elsewhere in the United States implies but the ascent by rail of the Sierra Nevada Mountains. In the valleys, roses

and oranges; in the mountains, snow-shoes and ice carnivals!

"The climate of San Francisco is uniform to a degree that is equalled in few regions. The summer fogs temper the heat and make July and August as comfortable as midwinter for work. The constant sea breeze that sweeps over the hills all summer long on its way to the hot interior valleys, carries away the germs of disease and makes San Francisco an exceptionally healthful city. Frost is rare in midwinter and a flurry of snow falls only once in a few years, melting almost ere it touches the ground. From June to October scarce a shower moistens the ground, but from November to May there are copious downpours, interspersed with some of the loveliest days of the year. The rainfall varies in amount from year to year, but it is always welcome, since the stormiest of winter weather means an ensuing summer of abundant crops. Last winter, with a rainfall of twenty-one inches, was an average season.

"From my aerie amid the Berkeley Hills I look out through the Golden Gate and see stately ships and proud steamers coming and going; I can trace the long line of overland trains speeding along the bay shore; away yonder the city flecks the stubborn heights of San Francisco. The whole great pageant of commerce is in view afar off on the blue and purple relief map of bay and mountains. The matchless gate of gold is there glowing in the sunset. Over on La Loma, but a stone's throw distant, stood Fremont when he named that 'road of passage and union between two hemispheres' the Chrysopylæ or Golden Gate.

"Where could be found a more fitting highway for the world commerce to travel, where a more sublime portal whence the power and products of western civilization should go forth to other shores of this vast Pacific, and the stored wealth, art and industries of the Orient be returned to enrich America? San Francisco, founded by the Spanish padres who bore the cross to the scattered Indian tribes of the wilderness, invaded by a cosmopolitan horde from the four winds of the globe, flocking at the cry of gold, developed by American energy into the most important city of the Pacific shore, has now taken a new impetus of growth and has before it a more brilliant future than the most sanguine of its founders dared anticipate. May that largeness of public spirit, that breadth of view and that readiness to co-operate in all that is good, grow and develop until the community is able to fitly cope with this empire of the Pacific sea and shores and make it tribute to its genius!"

CHAPTER XXV

VOLCANIC UPHEAVAL IN ITALY

The Eruption of Vesuvius of April, 1906, Destructive to Life and Property—Calabrian Earthquakes Foreshadow the Catastrophe—Panic Follows Outbreak—Beautiful Villages and Villas Menaced by Lava—Bosco Trecase Overwhelmed and Destroyed—People Flee From the Destroyer in Terror—Pathetic Scenes Witnessed—Cone of Vesuvius Collapses—King Victor Emmanuel Visits Stricken District—The Monarch Greeted With Enthusiasm by Refugees—Two Hundred Square Miles of Territory Laid Waste—Graphic Account of the Disaster—Four Towns Annihilated—Appalling Loss of Life—Heroic Rescues—Prospects of the Future.

The eruption of Mount Vesuvius in April, 1906, attended as it was by great loss of life and tremendous damage to the villages and towns within reach of its withering breath, was one of the most violent on record. The volcano had been active for centuries following the disaster of 79 A. D., when Pompeii and Herculaneum were buried beneath the relentless flow of lava, mud and ashes, but it was reserved for the twentieth century to witness a gigantic upheaval which was to result in the loss of approximately 2,000 lives, the destruction of more than 5,000 homes, the devastation

of ten towns and a property loss of not less than $10,000,000.

It was the Martinique disaster in 1902 that caused the Italian residents in the vicinity of Vesuvius to fear that the gigantic forces beneath them soon must assert themselves. In this they were not mistaken, for in the following year the belchings of the Titanic mountain became more and more menacing. The year passed without serious mishap, however, and the peasants tilled their farms, with many a prayer of thanksgiving to the saints for averting disaster when it appeared more than usually menacing.

In 1905 Vesuvius again began to show uneasiness and in June of that year the Prefect of Naples deemed it advisable for the inhabitants of the villages clustering on the slopes and at the base of the mountain, to leave their homes owing to the increased discharges of lava from the volcano. The people were reluctant to take this step and it was not until October, when 300 villages were destroyed by earthquakes in the Province of Calabria, that new and more violent activity on the part of the mountain caused hundreds to flee to distant towns for safety. The seismic disturbance in Calabria and the muttering of Vesuvius apparently were in sympathy, and the gravest apprehensions of the future were felt on all sides.

The disturbance, however, was only momentary—Vulcan's fires smoldered as they had for ages, but they had not been extinguished. It was on April 3rd when dense volumes of smoke, accompanied by an immense flow of lava that gushed in fiery cascades from the crater and swept as a resistless torrent down the moun-

tain side, excited intense alarm. The eruption increased in violence hourly and within the following three days, the people realized that a frightful disaster impended and the inevitable panic ensued.

Mount Vesuvius, termed by some traveler, "a colossal brazier," rears its top to a height of 4,000 feet above the level of the sea, and is about ten miles from Naples as the crow flies. It has a circumference of thirty miles and on this slope, reaching to the shores of the Bay of Naples, a score of pretty villages nestled. Upon the grassy terraces above these towns, beautiful villas, the property of wealthy merchants and nobles, reared their marble fronts, and from the mullioned windows of which, rare views of the surrounding landscape were to be had. The peaceful scene soon was destined to undergo a strange transformation and instead of charming villages, dreary wastes of hot lava were to greet the eye at every turn—and gaunt figures of death and desolation were to stalk forth to lay waste the land and plunge the people into the bitter darkness of grief and despair.

On the south slope of the mountain stood Bosco Trecase, a town of 6,000 population. It was from this place that the ascents of Vesuvius usually were begun by tourists. Below it, at a distance of two miles, lies Torre dell Annunziata, a prosperous town of 15,000. It has a small harbor on the bay and does an annual business of considerable extent with the Mediterranean countries. To the eastward, and two and a half miles north of the ruins of Pompeii, was Bosco Reale, a village of 2,000 population. On the western slope, nearer to Naples, and resting on the bay shore, is Portici, the

people of which are largely engaged in the fishing industry. From the mole which extends into the bay for a considerable distance at this point, a magnificent view of the bay is to be obtained. Four miles from Portici, is Terre del Greco, a town of 30,000. The city stands on a lava stream which destroyed two-thirds of the older towns in 1631, has several good hotels and is the favorite winter resort and during the sea-bathing season it is annually visited by thousands of Italians of the better class. In addition to these cities and towns, there are scores of hamlets, many of which were later ruined by fire or buried beneath tons of ashes.

On the morning of April 7th, the hidden forces in Vesuvius manifested themselves in irresistible form. For two days previously an enormous volume of smoke, rising to a height of two miles above the crater, had spread so that with its diameter of more than twenty miles, the light of the sun was obscured even in Naples. Incandescent masses of stone were thrown upward a distance of 3,000 feet, only to fall back into the crater or upon the mountain slope, where, plunging into the streams of red hot lava, they served to swell the fiery torrent that consumed all in its path. Accompanying the eruption were ashes, which, carried by a strong southeasterly wind, were wafted towards Naples, covering that city and intervening towns as with a shroud of gray.

Immense fissures opened far below the cone, from which lava, racing at white heat down the slope, and sulphurous fumes, the inhalation of which was death, escaped. One of these streams completely destroyed Bosco Trecase, engulfing its houses as so much waste

RUINS OF TEMPLE EMANUEL.
(Top.)
RUINS ON VAN NESS AVE.
Showing the burnt business section.
(Bottom.)

THE MEN AT THE HEAD OF THE RELIEF COMMITTEES.

President Roosevelt, Mayor Schmitz of San Francisco, Mayor Dunne of Chicago. D. R. Forgan and J. E. Phelan of San Francisco, Treasurers. Mr. Phelan, although losing several millions by the calamity, contributed $1,000,000, the largest individual amount subscribed.

paper and destroying scores of persons who had lingered in the hope of saving their prized possessions from the insatiable destroyer. Another stream reached the outskirts of Torre del Greco, laying waste thousands of acres of farm land and destroying much stock and implements of husbandry.

Meanwhile, the inhabitants of the threatened towns were fleeing to Naples in crowds, terror-stricken and despairing. Thousands of once happy and prosperous villagers and peasants, compelled to leave behind all they could not conveniently carry or place in wagons, fled before the fiery avenger with lagging footsteps, as if hopeful that the convulsion might cease and they be allowed to return to their own. Women, burdened down by bundles, leading their children by the hand, stopped before every crucifix and implored the Madonna to save them. The village churches en route were filled with worshippers, imploring the saints to stay the hand of fate and avert the ruin which was to overwhelm them. Men, women and children, with their dogs, cats and chickens, crowded the wagons on the road to Naples, all white with dust under the lurid glare. It was a scene emblematic of the inferno and one not likely soon to be forgotten by the fear-stricken wretches who served to contribute absolute realism to the horrid mise-en-scene.

On the night of April 7th, the great cone of Vesuvius collapsed with a mighty roar and the cable railway and the new hotel near it were destroyed. The observatory in which Prof. Matteucci worked incessantly throughout the eruption at the peril of his life, his encouraging messages saving Naples from a panic,

fortunately escaped destruction. This convulsion was attended by a roar as of a battle of artillery which, to those at Naples, sounded like thunder. Accompanying these detonations, repeated shocks of earthquakes, increasing in severity with every recurrence, served to increase the terror of the people, who now were fleeing in a solid mass along the roads leading to Naples and the country beyond.

While Vesuvius was laboring mightily and the fears of the populace hourly increasing, the Italian government was doing all in its power to minimize the evils necessarily attendant upon widespread panic. On April 8th King Victor Emmanuel, accompanied by the Queen and their suites, arrived at Naples from Rome and immediate steps were taken to assist the refugees and alleviate the sufferings of the distressed. When the royal train reached the station at Naples, the eruption was almost at its worst, and his majesty being informed that Terra dell Annunziata was threatened with destruction, directed that he be taken there without delay.

"But your majesty will be in danger," protested the Duke of Aosta.

"It is my duty to go there, regardless of everything," responded the king, with characteristic frankness.

Traveling in automobiles, the royal party set out for the stricken district. In the vehicles, besides the king and queen and the Duke and Duchess of Aosta, was the Princess of Schleswig-Holstein, who was the guest of the duchess. The royal party was received with cheers and weeping by the populace that lined the road. There were expressions of frantic joy, wild gesticula-

tions of entreaty, pitiful wailings from sorrow-laden bosoms. Men and women crowded around the automobiles and kissing the king's hand and the queen's gown, the people exclaimed: "God has sent you to us; our prayers now will be heard."

One of the women, browned by toil under a blistering sun, her hands hardened by constant labor, and carrying a crucifix upon her breast, addressing the king, cried out:

"If thou art our king, order the volcano to stop!"

"My poor woman," responded the king, sadly, "I am but a man; what you ask of me, only God may do."

It was a terrible picture that presented itself to the gaze of King Victor and his party, but they did not dare approach those spots where the destroyer had done its work. In turn, Santa Anastasia, Cercola and Somma Vesuviana were visited and the refugees gathered there told that all that the nation could do would be done to relieve the wants of the people. Beyond these places 200 square miles of fertile land, covered with farms, gardens, vineyards, were overwhelmed by masses of lava, mud, cinders and ashes. This territory only a few days previous was a garden of rare beauty and fertility. It contained scores of villages and thousands of happy, peaceful, rural homes. Eight days after the first eruption began, it was blotted out and had become a wilderness as dreary as any in the desolate wastes of Sahara. In all the country, there was no sign of life or vegetation. The tragedy was colossal and heart-rending.

Spectators describe the gloomy picture that presented itself on the tenth day after the eruption began.

At Rome there was sunshine, but twenty miles south a thin veil of smoke made nearby mountains dimly visible and their snow peaks were soiled and sooty. The zone of semi-obscurity began twenty-five miles above Naples. Here there was an uncanny phenomenon. The sun, though shining, was invisible. Its light seemed to come through smoked glass, shedding a sickly glare upon whitened vegetation.

Everything was covered with a thin white powder. Pretty white villas were daubed and dripping with mud, and people were busy on the roofs shoveling off the ashes. The crowds at the stations resembled millers, their clothing covered with powder. The Campania presented the appearance of a Dakota prairie after a blizzard, except that everything was gray instead of white. The ashes lay in drifts knee deep. Villas, trees, and churches were beaten with gray mud on the sides exposed to the volcanic storm.

Ten miles north of Naples the train entered an area of semi-light. Billows of thick smoke rolled from the direction of the mountain. The railway telegraph poles were invisible twenty feet away. The train moved with extreme precaution to avoid collision. Breathing was difficult, and the smoke made the eyes water. This obscurity lasted until a short distance north of Naples, where the sky cleared and normal conditions were resumed.

The volcano was hidden behind a thick curtain of smoke, which rose from the crater and then spread and fell, enveloping a vast circle in semi-darkness. Naples lies just beyond this circle.

The eruption of Vesuvius almost entirely ceased on

April 18th, but the results thereof overwhelmed every spectator by their ghastliness and extent. Every day that passed furnished new evidences of the magnitude of the catastrophe. At Portici, 243 houses were damaged, 195 at San Giovanni and Teduccio, 432 at Resina and 1,000 at Torre del Greco. In the villages on the Ottajano side of the mountain all the houses were damaged. At Nola, desolation reigned, the town having been abandoned. San Gennaro, on the east side of the mountain, was partially buried in sand and ashes and several houses collapsed. San Guiseppe was buried beneath four feet of ashes. Bosco Trecase, overwhelmed by two streams of lava at night, flowing from the Ciramella crater, became a waste. Four towns were destroyed and a dozen villages rendered almost uninhabitable. This enormous damage, coupled with the destruction of the cultivated lands, mutely attests to the ferocity of the Vesuvian visitation, from the effects of which the country will not recover for many years to come.

Robert Underwood Johnson, associate editor of the Century Magazine, made a tour of the devastated district, passing enirely around Vesuvius. He gives the following graphic account of the catastrophe:

"Since the Chicago fire I have seen nothing so terribly impressive. Twenty years will not repair the damage, including the destruction of four whole villages. With a change of wind or slightly greater propulsion of the seismic force, the same fate might extend to other segments of the circle of which Vesuvius is the center.

"Arriving from Rome two hours late by train, I

joined a party of two Italian gentlemen and two English ladies, including Miss Underwood, the Rome correspondent of the London Standard. We caught a train from Torre Annunziata, three miles this side of Pompeii and two miles from the southern end of the wedge of lava which destroyed Bosco Trecase.

"We had a magnificent view of the eruption, eight miles away. Rising at an angle of fifty degrees, the vast mass of tumult roundness was beautifully accentuated by the full moon, shifting momentarily into new forms and drifting south in low, black clouds of ashes and cinders, reaching to Capri. At Torre del Greco we ran under this terrifying pall, apparently a hundred feet above, the solidity of which soon was revealed by the moonlight.

"We reached Torre Annunziata at 3 o'clock in the morning. There was little suggestion of a disaster as we trudged through the sleeping town to the lava, two miles away. We reached the lava at a picturesque, cypress planted cemetery on the northern boundary of Torre Annunziata. The lava was cool above, but still alive with fire below. We could see dimly the extent of the destruction beyond the barrier of brown which had closed the streets, torn down the houses, invaded the vineyards, and broken Cook's railways.

"A better idea of the surroundings was obtained at dawn from the railway. We saw north what was left of Bosco Trecase—a great square stone church and a few houses inland in a sea of dull brown lava. North and east rose a thousand patches of blue smoke, like swamp miasma. All was dull and desolate slag, with

nowhere the familiar serpentine forms of the old lava streams.

"We ate a hasty luncheon before sunrise, when the great beauty of the scene was revealed. The column now seemed higher and more massive, rising to three times the height of Vesuvius. Each portion had a concentric motion and new aspects. The south edges floating towards the sea showed exquisite curved surfaces, due to the upper moving current. It was like the decoration of the side of a Greek sarcophagus.

"I was surprised to find no new lava at San Giuseppe. Four towns here were destroyed in different ways—namely: by rain, cinders, and ashes, which could not be skirted, for they lay everywhere in a mass which had broken nearly every roof within the area of thirty miles by ten. From the lava, which was moving several feet a minute, we had no difficulty in escaping.

"At Bosco Trecase the carabiniery drove the people before the fiery avalanche, but the flimsily built houses were no protection against the blizzard of cinders and ashes, tasking the roofs or strongly built walls all Saturday. The wedge east of the volcano thus destroyed extends ten miles at least, with a width of twenty or thirty miles.

"Fancy a rich and thickly populated country of vineyards lying under three to six inches of ashes and cinders of the color of chocolate with milk, and you will get an idea of the desolate impression of the scene, a tragedy colossal and heartrending."

The loss of life, too, was equally appalling. The collapse of the roof of the market at Naples, covered

as it was with tons of ashes, was fatal to 200, while as many more were seriously injured. The roll of the dead at San Giuseppe numbered 40, as far as known, while at Ottajano 550 bodies were recovered. At Terzigno 20 bodies were found. At Ottajano 73 children who, with their parents, were preparing to evacuate the town, wandered away from their escort in a blinding whirl of ashes, and no trace of them ever was discovered. It is certain they succumbed to suffocation and found graves beneath the ever-descending rain of ashes. While it is impossible to correctly state how many lives were sacrificed to the fury of the eruption, the estimate of 2,000 is deemed by the conservative as closely approximating the actual number.

The horrors of the tragedy shocked all and the heartfelt sympathy of the nations of the world was expressed. Many tales of heroic rescues by the soldiers, who were forwarded to the danger zone, reached Naples and awakened enthusiasm and admiration in every human breast. One is related of a soldier who braved the toppling walls at Ottajano to rescue a mother and her three children from a cellar into which they had fled for refuge. He succeeded in evading the oncoming rush of lava and brought his precious burden to a place of safety. Refugees, covered with mud and ashes, tottered into Naples with tales of terrible privation and suffering and deeds of heroism that appalled the sense and stirred the soul by turns. Personally assuming charge of the relief work, King Victor performed a noble work which endeared him the more to his subjects.

Although Vesuvius again is quiet and the subter-

ranean forces which periodically agitate the volcano are for the time being subdued, recurrences of varying degrees of violence are looked for by the scientists of the world. It has been observed that since 1879 the eruptions of this volcano have been variously active and each time more alarming. There were two eruptions in 1900; two others in 1903, each more violent than that of 1872. Red-hot stones, hurled 3,000 feet into the air, fall back upon the mountain with thunderous report. The prodigiousness of this force may be appreciated when it is known that some of these stones have weighed not less than two tons. What does this portend? May we look for more eruptions in the future, more violent than their predecessors? If so, what, then, is the future of the garden of Italy? Constantly threatened by the fury of this volcano, whose power no human agency knows how to combat, it would seem that the safety of the populace affected by its fatal manifestations lies in flight. But with that stubbornness that characterizes humankind when battling against seemingly insuperable obstacles, it may be held as certain that until the universal cataclysm, succeeding generations of men and women will again and again reclaim the land wrested from them by Vesuvius. That their task may not be vain, is the wish of the sympathizing races of the globe.

CHAPTER XXVI

ANCIENT HISTORY OF VESUVIUS

Not Active Before the Christian Era—Used by the Gladiators as a Fortress—Overthrow of Pompeii Described by Pliny the Younger—The Great Earthquakes of the Campagna—Fifty-six Recorded Eruptions of the Volcano—Finding of Pompeii After 1,800 Years of Disappearance—Great Educational Value in the City's Resurrection.

Before the Christian era, Mt. Vesuvius was not known as an active crater. In the year 72 B. C., Spartacus, the gladiator, with a few trusty followers, escaped from Rome and made the old crater a fortress. Clodius, the Roman general, besieged it with 3,000 men, guarding the only entrance to the crater. The gladiators, however, tore down the long vines which festooned the cliffs and then, suddenly lowering themselves from a precipice, bravely cut their way through the investing army. At that time the volcano had grown up luxuriously to forests and vineyards. No one suspected that within its flower-bedecked flanks Vulcan, the God of fire, was forging thunderbolts, and heating his caldrons of lava, preparatory to belching forth fire and destruction upon the human race.

Strabo, the Latin historian, mentions the moun-

tain, then called Somma, and draws attention to the fact that the rocks point to a fiery origin.

It is one of the smaller volcanoes of the globe, bearing no comparison in size with Mauna Loa, Popocatepetl or other large fire mountains of the Occident. Its height is 4,000 feet, and circumference at the base 35 miles. The adjacent country has been noted for thousands of years for its rich volcanic soil. Geologists claim that in prehistoric ages the mountain was twice as high as it is at the present time.

The first intimations of volcanic force and character were about 63 B. C. Then for sixteen years the adjacent country was frequently shaken by earthquakes. A small eruption destroyed a part of Pompeii, but this was restored again.

It was in 79 A. D. that Pompeii, Herculaneum and other Campanian cities were buried. The catastrophe has been immortalized in that famous romance of Bulwer's, "The Last Days of Pompeii." The author derived his information largely from the letters of Pliny the Younger to the famous Latin historian, Tacitus. In these letters he relates how he aided and hastened the flight of his aged uncle, Pliny the Elder, from Pompeii to Misenum, 16 miles away; but even at that distance from the volcano the old man succumbed under its fiery missiles.

For three days Vesuvius rained upon the devoted cities a ceaseless deluge of ashes, pumice, hot mud and scoria, mingled with death dealing sulphurous vapors. For three days the blackness of night prevailed and those fleeing from the scene could only grope along in a darkness that was occasionally lighted up by a

glare of zig-zag lightnings in the cloud above the crater. This cloud is famous in the history of the volcano and is depicted by historians and poets as the "pine-shaped column of the breath of Vulcan."

Pompeii being on the leeward side of the mountain was overwhelmed and buried many feet deep in fine ashes. Herculaneum, on the other side of Vesuvius, was deluged with hot pasty mud, which, after hardening, was very difficult to excavate. For that reason Herculaneum was in much better state of preservation when exhumed.

For 1,500 years these buried cities of Campania were only a memory, and no one knew their resting place. In 1575 workmen who were building an aqueduct for the water supply of Torre, came upon Pompeii, far beneath the surface, but no systematic excavations took place until 1748, when they were begun in good earnest. The work has been carried on with faithful and unselfish devotion by archaeological societies and the most valuable relics placed in the museums of Rome and Naples. For the education of the whole world this unveiling of an ancient civilization was a priceless treasure. Two cities, Herculaneum, the home of the wealthy; Pompeii, the abode of Roman artisans, peasants and the middle classes, were restored to us, just as they stood on that 24th day of August, A. D. 79. The "eroding tooth of time" had failed to do its work in this case, and many vexed questions regarding the manners and customs, the progress of civilization and the advance in fine arts and manufactures among the Romans were settled. In one storeroom were found raisins, dates, chestnuts, walnuts, figs, almonds,

prunes, lentils, hams, fish and lobsters. Even pies and other pastry came to light.

From the restored city we learn that Pompeii was built, like modern cities, with streets crossing at right angles. They were paved with lava rock, and fountains for water stood at the street corners. There were several open air theaters, with seats cut in lava rock and faced with marble. The theater tickets were of bronze, stamped like a coin. Under the seats hung a metal funnel used as an ear trumpet, the first suggestion of our telephone. In the courts of the wealthy were sun-dials, and to measure time in cloudy weather clepsydra, or water clocks, were found, which told the hours by the slow escape of liquids.

A forum, 500 feet by 100, was unearthed, and 22 vases standing in it, on which to place statues of illustrious men. Around the forum was being erected a new marble wall, and the last long stroke of the trowel on the mortar, as the workman dropped his tools to run for life, is as plain as if it was made yesterday.

In a banquet hall was a magnificent painting, showing the luxurious display of the wealthy. Four peacocks guarded, with tails overspread like a dome, the unique feast of Roman dainties. There were turtles with crabs on their backs, lobsters holding blue tinted eggs in their claws, a stuffed rat, a basket of grasshoppers surrounded by a huge Pompeiian sausage, garlands of mushrooms, suckling pigs and heads of wild boars, garnished with lettuce and cabbages, the whole fantastically decorated with festoons of flowers, peaches, cherries, lemons and eggs of pigeons. It is interesting to note the barbaric splendor in which the

wealthy Romans lived. When Pompeii was destroyed Rome was the mistress of the whole civilized world. We see in Pompeii the life of the nation depicted, when Rome was at the very acme of its magnificence.

CHAPTER XXVII

THE VOLCANO KRAKATOA IN JAVA

The Most Terrible Volcanic Explosion in the World's History—Accurate Records Gathered by the Royal Society of Great Britain—Volcanic Matter Thrown Twenty-three Miles Into the Air—Air Waves From the Concussions Carried Around the World Four Times Successively—Ocean Bed Sinks 900 Feet—Great Volcano Blown Into Fragments—Tidal Waves 50 to 135 Feet High Sweep the Coasts—Man of War Carried Two Miles Inland—Vast Quantities of Pumice Stone Carried a Thousand Miles—Boom of the Explosion Heard Distinctly Three Thousand Miles Away.

During the last week of August, A. D. 1883, occurred the most terrible subterranean convulsion in the world's history. All other volcanic eruptions are belittled, when compared with this. Thirty-six thousand Javanese and Sumatrans perished in the holocaust of hot mud, pumice stone and scoria which followed, and thousands were swept away to sea by a succession of huge tidal waves, which rushed through the Straits of Sunda like demoniac Niagaras.

So marvelous were the phenomena, and so like a tale of the Arabian Nights were the reports of eye-witnesses, that the Royal Society of Great Britain appointed a committee of scientists to verify the data.

The following facts and figures, compiled from their voluminous reports and exhaustive investigations, may be relied upon as accurate. From many data furnished by scientific eye-witnesses the following extraordinary phenomena were proved:

On the 26th and 27th of August, Krakatoa, a small volcano only 3,000 feet in height, projected volcanic rocks and scoria skyward to an elevation variously estimated by triangulation at from seventeen to twenty-three miles. This is four times the height of Mount Everest, the loftiest peak of the Himalayas. The air waves from some of the heaviest explosions were carried around the world (25,000 miles) as many as four successive times. This fact was indicated by the records of many delicate meteorological instruments of the astronomical stations in America, Europe and India.

A cone of Krakatoa, three thousand feet high, was split in two, leaving a precipice jutting onto the ocean. At the same time the bed of the sea in the Straits of Sunda sank 900 feet at some points. A part of Krakatoa Island sank 1,700 feet. The volcano was torn into fragments by the explosions and the missing portion (estimated at 200 billion cubic feet) disappeared. Whether it was blown off into space in the form of cosmic dust, or sank into the bowels of the earth is still a mystery.

Simultaneously with the explosions of the 26th and 27th, enormous tidal waves were raised, ranging, as estimated, from 50 to 135 feet high. A very accurate measurement of one of them was 72 feet above high tide limits. The man of war Berouw was carried in-

Photograph by F. B. Burke, Chicago.

George Lederer, Manager.

THE FAMOUS BERNHARDT TENT, LAKE FRONT PARK, CHICAGO.

This photograph shows the people buying tickets for the benefit given for the San Francisco people. The programme comprised the greatest star cast ever in one bill.

Photograph by F. B. Burke, Chicago.

Samuel Gerson, Treasurer.

INTERIOR OF THE BERNHARDT TENT DURING THE BENEFIT PERFORMANCE.

The crowd at the moment President Roosevelt touched the button in Washington that unfurled upon the tent the national colors of America and France. Madame Bernhardt has just come upon the stage.

land on the summit of one wave, and stranded nearly two miles from the sea, and thirty feet above tide water.

Among the marvels of the eruption were the vast quantities of pumice stone ejected and carried by the winds and tides for thousands of miles in every direction. Some of the pumice and volcano dust fell on ships as far distant from Krakatoa as 1,100 miles, while in the nearby straits and bays extensive floes of white pumice were encountered from three to six feet thick. For more than a year, great banks of pumice and porous lava were encountered by navigators in the Indian Ocean as far as Africa. Much of this flotsam was found to be encrusted with barnacles and other shell fish that had attached themselves.

The most astonishing phenomena, however, were the explosions themselves. They were distinctly heard by thousands of people in Java, Sumatra, Celebes, Siam, Burmah and the Philippine Islands, as proved by the records of instruments, coincident with the distinct booms reported by reliable ear-witnesses. On the 27th of August they were plainly heard at Singapore, 522 miles from the Straits of Sunda; at Bangkok, 1,413 miles; at Manila, 1,804 miles; at Ceylon, 2,058 miles; at the Island of Rodriguez, 3,000 miles distant!

It seems incredible that sounds could be carried so far through the air. But the Chief of Police of the Island of Rodriguez, a careful and scientific man himself, heard the booms with his own ears from the direction of Java, took careful note of the exact time of the day, the number of detonations, the direction of the sounds and the wind. As he also brought the evi-

dence of several other witnesses to bear in corroboration of his own statements, and the time of day corresponded exactly with the records of meteorological stations in India and Ceylon, the committee were convinced that the marvelous acoustic phenomena actually occurred. Rodriguez is the same distance from the Straits of Sunda as San Francisco is from New York City. The same day, similar booms were heard in Burmah. The life-saving station taking them for minute guns from an ocean liner in distress, sent out a revenue cutter to carry aid, but she returned after a long and fruitless search.

Still more wonderful are the records of the delicate instruments which took account of the vibrations of air propelled by the several great explosions. There were scores of these mechanisms, located in all parts of the civilized world, each connected with an astronomical or sidereal clock, and their accuracy was absolute, beyond the cavil of any skeptic. They are geared to measure 10ths and even 100ths of seconds. According to charts prepared by the committee, it is accurately shown where the vibrations of Krakatoa's convulsions were carried around our globe once, then a second time, a third time, and were even accurately measured the fourth time before they were dissipated. This meant a distance of 100,000 miles!

The City of Batavia in Java is 100 miles from the Straits of Sunda. At this point the movement of the earth during the eruption was hardly perceptible. The air vibrations, however, were simply terrific. The hearing of many people was almost destroyed. Nearly all the glass windows were smashed. Many buildings

were thrown to the earth, not by any force in the wind or ground, but simply by the sound waves. At Batavia there were three days of black Egyptian darkness. Nothing could be heard but the volcano's continuous roar; nothing could be seen but the flashes of lightning that played back and forth incessantly through the black murky vapors that shot more than twenty miles into the sky over the volcano. Hot mud, cinders, ashes, scoria and pumice stone were falling everywhere within a radius of 200 miles from Krakatoa. What took place nearer the crater than Batavia may never be known, for few remained to tell the tale, and those who escaped were so crazed with terror that their evidence would not be reliable. The most accurate accounts and details came from the captains of many steamers and merchant vessels, who, intending to follow the ocean highway through the straits, approached the volcano before they discovered their danger.

Anjer, a seaport town of Java near the Straits, was completely blotted out by the tidal waves which followed each severe explosion. Scores of the coast villages of Java and Sumatra suffered the same fate. Whether the residents were all destroyed is not known. The most of the coast villagers were fishermen, and expert swimmers. Doubtless many of those who were swept miles to sea, swam back again, but so great was the awe inspired by the volcano, that the surviving Javanese seldom returned to the western end of the island.

The tidal waves, which exceeded in magnitude any that we have record of, were carried in all directions, and made themselves evident in all the oceans and at

many recording stations. They nearly met each other from opposite sides of the globe, being noted on both shores of Central America. The west coast of France, the south of England, Alaska, South America, and Honolulu were all visited by their impetus, and unusually high water and agitation recorded. No doubt the cause of these waves was the sudden subsidence of the seabed under the Straits of Sunda. Its sudden breaking down 900 feet below the usual level would not fail to produce terrific agitation, and the inpouring of ocean waters from all directions.

What happened in Krakatoa is described by expert volcanologists in the following way:

As the island was low and the bottom of the wide crater of Krakatoa not far from the sea level, it is most probable that a rent occurred either in the crater's rim or in the flank of the volcano below the sea level. The ocean was thus admitted and found its way through the lateral shafts of the volcano to the white hot liquids many miles below. Here the sea water united with the lava to form pumice stone cinders, scoria, cosmic dust and steam.

It is most certain that a vaster quantity of ejecta of the various kinds, was vomited into the air than any one volcano had ever produced. These were scattered all over the great islands of Java, Borneo and Sumatra, and the adjacent oceans. Merchant vessels as far away as 1,100 miles received a liberal rain of white dust on their decks. Several months later one ship's log shows that for several days she sailed through banks of floating pumice that was already encrusted with shells and barnacles. The officials of the Dutch gov-

ernment (to whom Java belongs) made accurate and profuse notes of all these phenomena.

Naturally the loss of such a vast amount of subterranean material would produce a corresponding vacuity. The sinking of the island and ocean bed from 900 to 1,700 feet would account for the filling up of the space.

The most peculiar phenomenon of this eruption was the quantity of cosmic dust cast into space. That this was launched beyond the region of the clouds and became a part of the upper strata of the atmosphere there is no question. For a whole year astronomers and meteorologists in every part of the globe recorded and compared notes of the remarkable sunrise and sunset "glows." These showed different tints, according to locality, varying from crimson to purple and reddish olive. This dust doubtless was as tenuous as the lightest vapor, and was able to hold its place beyond the atmosphere because out of the reach of the moist vapors and rain which would wash it back to earth. As late as a year subsequent to the explosion masters of sailing vessels in the Indian and Pacific oceans reported that a very fine and impalpable deposit would gather on the decks unless they were washed every day. Meteorologists attributed this to the gradual return of the cosmic matter from the upper regions of the atmosphere.

CHAPTER XXVIII

ST. PIERRE, MARTINIQUE, ANNIHILATED

Story of the Swift Destruction of a Beautiful City in the Lesser Antilles—Mt. Pelee's Terrific Outburst of Poisonous Gases, Flame and Ashes—Entire Population Killed Instantaneously — La Soufriere's Eruption that Devastated the Island of St. Vincent —Earthquake in Guatemala.

The town of St. Pierre, the chief city of Martinique, was totally destroyed by the eruption of Mt. Pelee on the 8th day of May, 1902.

The eruption was so sudden and fierce that the entire population, consisting of 30,000 persons, was instantly destroyed.

The volcano of Mt. Pelee had been inactive for a long period, and the people who builded St. Pierre at the foot of the mountain fronting the bay felt secure. The location was beautiful; the climate salubrious, and the merchants carried on an extensive trade with the world.

At 8 o'clock of a beautiful May morning the ancient volcano suddenly shot forth a most tremendous volume of fire, smoke and lava. The bed of the crater, so long extinct, had become a lake of some dimensions, and from the heated water arose great clouds of steam. This, uniting with the gases escaping from the depths of the earth, settled over the devoted city and the pop-

ulation was asphyxiated on the instant. Men, women and children fell down wherever they happened to be and expired without knowing of the calamity that had befallen them, and all those dwelling in the city or on the mountain side for a radius of many miles.

All the descriptions of this eruption were gathered from those who dwelt at some distance from the crater. It is said that no less than seven pillars of fire shot up at once from the apex of the crater, ascending straight into the heavens for a great distance before they spread out and joined into one—a magnificent spectacle. Then the weight of the atmosphere pressing on the diluted gases bore downward the poisonous clouds to suffocate all living things which they enveloped. Every spear of grass, every twig, every least animal or insect, became at once a black and lifeless object.

It was not the lava that poured over the mountain sides to cover the valley knee deep in a molten mass that worked this universal destruction: it was as though the very air had suddenly taken fire and consumed itself with everything to which it gave sustenance. Those who witnessed the spectacle at a distance so describe it. Later, when the first terrific explosions had passed, there was an immense flow of lava, streams of which ran down the mountain sides in all directions for several days. The courses of rivers were changed, the hot floods breaking through obstructions that had held lighter streams in check, and ploughing new channels to the sea.

For several days previous to the eruption the air had been filled with fine white ashes which settled down upon the town, coating everything with a gray powder

inches thick. Then came earthquake shocks, and tidal waves. Still the inhabitants went about their work feeling confident that nothing serious was going to happen.

The morning of the disaster was blue and smiling. The ash clouds had disappeared and the sun shone with unusual splendor. Then, in the wink of an eye, while the city was in the first flush of re-awakened life, while the church bells were ringing to mass, and the blinds were being taken from the houses of business, the flood of gaseous fire swept down and what one moment was a beautiful city was the next a blackened, tumbled sea of death.

The disaster was first known at Fort de France, a small city toward the south end of the island. On the morning of May 8th a thick cloud of smoke, cinders and ashes spread over that locality, and the sea receding from the shore for fifty feet rushed back again, engulfing the land. This happened twice. Acting upon the supposition that Pelee had broken out, troops and provisions were hurried aboard vessels and sent to St. Pierre. In two hours these vessels returned bringing the news that the city was obliterated and the sea shore there in such a blaze that they could not land.

When landings were finally effected, a few survivors, frightfully burned, were found in the suburb of Le Carbet. The towns of Le Precheur and Manceau had been utterly destroyed. Most of their inhabitants, however, had time to flee to places of safety.

On the morning of May 8th there were eighteen vessels lying at anchor in the harbor of St. Pierre. All perished save one. The storm of boiling mud, fire and

molten rocks that the crater hurled forth engulfed them before they had time to make a movement toward safety. The British steamer Roddam luckily had steam up. She slipped her cables and backed away from the shore, her captain remaining at the wheel, although he was badly burned. Nine hours later the vessel reached Castries, St. Lucia, a charred and dismantled hulk. Her decks were covered thick with ashes and cinders, many of her crew lay dead in the cabin and hold; others were dangerously burned. Two had lost their reason and eleven had jumped into the sea and were drowned. A few of the sailors of the other ships who leaped overboard were carried out to sea and picked up alive. They described the bay as a veritable furnace in which the ships crumbled to ashes almost upon the instant.

Mt. Pelee continued in eruption for several days. So terrifying were the explosions that the inhabitants of the entire island rushed to the coast and all who could do so took passage to other islands. For weeks vessels touching at Martinique were crowded with panic-stricken refugees.

The island of Martinique has witnessed several disasters of magnitude. In August, 1767, St. Pierre was visited by an earthquake which killed 1,600 persons. An eruption of Mt. Pelee in 1851 threatened the city of St. Pierre with destruction. In 1891 the island was devastated by a hurricane. But the soil there is so rich and the climate so propitious that even the most severe disasters are soon forgotten in the return to easy and pleasant employment, and the success which attends it.

St. Pierre is situated on a bay in the northwestern part of the island. Above it to the eastward rises Mt. Pelee to the height of 4,400 feet. Other volcanic mountains are grouped about it. In fact the whole island is little else than mountains, their peaks a mass of burned out lava, their sides green with verdure.

The destruction of St. Pierre awoke a feeling of pity similar to that which swept over the country when it was known that San Francisco lay in ruins. Relief committees were organized in the leading American cities, funds were subscribed, and expeditions bearing money and supplies fitted out and dispatched to that port. The United States led the way in official action, earning the gratitude of France by its promptness in extending charity to its stricken colony. Other nations were not backward in the work and gave liberally. All the islands in the south seas sent relief parties with physicians and nurses. St. Pierre itself was beyond the need of relief, all of its inhabitants having perished. But hundreds of the inhabitants of other portions of the island were rescued, made comfortable and re-established upon their plantations through the generosity of strangers.

St. Pierre was a city of the dead. Blackened corpses were everywhere. To avoid a pestilence they were cremated and the city became a place of barren desolation.

The foreign consuls resident in St. Pierre, of course all perished. They were: For the United States, T. T. Prentis; Great Britain, J. Japp; Denmark, M. E. S. Meyer; Italy, P. Plissonneau; Mexico, E. Dupie; Sweden and Norway, Gustave Brode.

Louis Ayme, American consul at Guadeloupe, was one of the first to reach the scene of the catastrophe. He forced his way ashore under great difficulties and dangers and after a long search found the remains of Mr. and Mrs. Prentis. It was the eighteenth of May before British sailors were able to land, and at danger of their lives, bring away these bodies and that of Mr. Japp. While they were ashore the volcano again broke forth with fire and molten lava. Had it not been for a shifting of the wind, which blew the flames out to sea, the American and English sailors who refused to abandon their gruesome burdens must have perished.

On the same day that St. Pierre was destroyed there occurred a similar eruption of the volcano La Soufriere on the neighboring island of St. Vincent, a British possession. This crater, at the northern end of the island, had been active for several days previous to the Mt. Pelee disaster. With a sudden roar it sent forth a vast column of smoke and deluged the whole island with ashes and hot stones. Lava flowed in rivers down the mountain sides, overtaking the inhabitants in their cottages before they had time to think of flight. Fully 2,500 of the population perished. Among them was the historic tribe of Carib Indians whose village and lands nestled at the very foot of "The Sulphur Pit." When the relief expeditions reached the spot not one of the tribe was to be found alive. Thus perished the native people who were found upon that spot more than four hundred years before by Columbus.

The fact that St. Vincent was not so thickly populated as Martinique, and that hundreds of the inhabitants of plantations and villages below La Soufriere

had fled when the volcano first became active, accounted for the small loss of life on the British island. But the eruption was no less violent than that of Pelee. Sixteen square miles of land were covered by lava and the destitution was great. Hundreds of persons were most painfully injured by hot cinders and sulphurous fumes.

La Soufriere for ninety years had slept. In 1812 an eruption of this volcano had nearly destroyed the island. When it subsided the crater had closed and as the years passed this basin filled with water, forming a beautiful lake. The Indians, whose traditions preserved the memory of former eruptions, had come to regard the mountain as harmless. They built their huts all over its verdure-clad slopes, and died for their confidence, as did the victims of Mt. Vesuvius many hundred years before.

Closely preceding the volcanic outbursts of Martinique and St. Vincent, and probably closely related to them, severe and destructive earthquakes were felt in Guatemala. For nearly a week the shocks continued and many towns on the western slopes of the Sierras were wrecked. Quezaltenango, the second city of Guatemala, suffered the most. Nearly all the business buildings were wrecked, hundreds of residences destroyed and about 1,000 persons perished. As in San Francisco, fires broke out in the ruins, and many of the people went insane or committed suicide. In the town of Ocos every house was thrown down and the banks of the river pressed together, narrowing the channel nearly twenty feet. In all, this Guatemalan

earthquake resulted in the loss of several thousand lives and a destruction of property valued at $50,000,000.

Owing to the total loss of life at St. Pierre accurate accounts of the catastrophe are lacking. Like Pompeii the city was blotted off the map, but unlike that historic city it was burned and not buried, so that even the tell-tale excavations of the Roman city cannot be repeated in the happy Southern isle. Since that awful Thursday the city has practically remained deserted. Only recently has there been even a slight return of men to the spot. The harbor is little used; it is no longer a port of entry. Along the gorged and blackened mountain sides verdure is beginning to appear. But the site of the once charming city is a dreary waste, the skeletons of its former buildings looming gaunt and black against the gloomy background. It will be a generation, perhaps more, before St. Pierre will again become an active city.

CHAPTER XXIX

VOLCANOES OF HAWAII

Haleakala, Large Extinct Crater, and Mauna Loa, Most Active of Live Volcanoes—Descriptions of Two Lava Flows From the Latter—Narrative of a Visit to the Famous Crater in the Clouds—No Trace of Life Found There—Sublime Scene When Mokuaweoweo Was in Eruption.

When Hawaii was annexed to the United States, Uncle Sam came into possesson of two of the greatest wonders on earth—the largest extinct volcano, Haleakala, and the most active and energetic of all the live volcanoes, Mauna Loa. For those interested in the subterranean disturbances of Mother Earth, facts and incidents are here given, which will throw much light on eruptions and earthquake convulsions.

The Island of Hawaii has an area of 4,000 square miles. Of this, Mauna Loa and its slopes occupy more than half, and Mauna Kea, a still loftier but extinct volcano, the remainder. Between them is a tableland twenty-five miles wide and 8,000 feet above sea level. Onto this tableland the volcano throws the larger part of her lava rivers. It is sometimes called "Pele's backyard and dumping ground." The lower slopes of this tableland are covered with a vast tropical forest, one of the most impenetrable and luxuriant known to man. Along the shores and ad-

joining are the great sugar and coffee plantations of Hilo.

Mauna Loa is a grand huge dome seventy miles in length, nearly 15,000 feet in altitude, and is generally crowned with a glittering cap of snow and ice. There are from twenty to forty eruptions each century, but few lava rivers reach the shore. Earthquakes are frequent, but so seldom severe that little attention is paid to them. Descriptions of two lava flows will give the reader an excellent idea of the mountain's peculiarities.

On March 27, 1868, the mountain awoke from a long slumber, and the whole southern end of the island was shaken at short intervals for ten days. The crater of Kilauea became active, and parts of the cliff around it were thrown to the floor. Boulders of forty or fifty tons were detached, and some of them came rolling down the steeper slopes of Mauna Loa. At 4 p. m. April 2nd came the severest earthquake ever known on the island. Every stone wall or stone house within fifty miles of Kilauea was demolished and many frame houses were damaged. As the missionary, Rev. Titus M. Coan (stationed at Hilo), relates the story: "It seemed as if all the ribs and pillars supporting the earth had been shattered. I rushed out of the house and found my wife on the grass plot; together we gazed with astonishment at the house, the trees and the garden. They rocked and careened in waves that were like the surges of the ocean. When we entered the house a few minutes later, the bookcase in my study, filled with heavy volumes, had been thrown forward on its face. The

whole belongings and furniture were heaped on the floors in indescribable confusion. But we were thankful that we did not live in Ka-u, the district beyond Kilauea. Here seemed to be the focus of the trouble. For seventy-five miles the southern shore of the island subsided permanently seven feet. Many coast villages were submerged, and a fissure, more or less marked by steam, jets of lava, and the rending of precipices, developed itself from Kilauea forty miles in a straight line into Ka-u. Several landslides occurred in the vicinity. One in particular, where the ground was watersoaked, gained impetus by being thrown over a precipitous declivity several hundred feet high, and then swept three miles down onto the plain in as many minutes. In this catastrophe ten houses, thirty-one souls and 500 head of cattle were overwhelmed in twenty to forty feet of mud. Not one of the unfortunates was ever recovered. This deluge of pasty earth was half a mile wide.

"About the same time a tidal wave swept the whole south shore. The crest of the immense billow was as high as the tops of the trees, and as it surged inland and back again to the ocean, it carried away 108 thatched houses of the Kanakas and forty-six natives were drowned. And now the strangest phenomenon took place in Kilauea. The floor of a large part of the crater gave way, falling several hundred feet, and the eternal fires nearly all disappeared. Our volcanologists claim that the lava flowed by the subterranean fissure mentioned above, as a hadean underground river, to the point of the next outbreak in Ka-u.

"During all this time the earth tremblings had

E. H. Sothern, as Hamlet. E. S. Willard.

Sarah Bernhardt as she appeared at the great tent benefit.

Julia Marlowe. **Sarah Bernhardt as Adrienne Lecouvre.**

These great artists appeared at the benefit for the San Francisco people in the famous Bernhardt Tent in which she starred through Texas. The performance netted $15,605.

ERUPTION OF VESUVIUS.

Rain of ashes on the Bay of Naples where the darkness became so intense that ships could not navigate in safety in broad day. Photograph taken April 6, 1906.

been incessant. Some who counted claimed to have recorded as many as 1,000 shakes in a single day! They ceased with the outbreak of the lava, as is the usual case.

"On the 7th of April came the crowning climax of the catastrophe—the holocaust of fire and rock."

From the story of Captain Brown, a retired whaler, whose ranch was exactly in the path of the awful river of death, is taken the following graphic account of the eruption:

"My beautiful ranch, with hundreds of fine horses, cattle and goats, was wiped out in a very few minutes. I was a rich man at supper time, but thirty minutes later, as poor as Job's turkey. Our house was pretty well shaken up, and, like all the rest of the folks in Ka-u, we were living in a tent close to it. About dusk I heard a terrible buzzing up on Mauna Loa. It sounded like a thousand swarms of bees, or hundreds of sawmills in full tide of manufacture. Then, three miles above us, I saw a crack yawn open a mile long on Mauna Loa, and out poured the white lava, like an ocean of milk, spreading out like a fan and plunging down in three rivers. I saw in a twinkling there wasn't a second to lose, so starting my children (and I had a good many of them), I grabbed one sick child in my arms and with my invalid wife we started. The Kanakas wanted to mount a little hill near the house but I told them all to follow me. There was a little valley near the house, and into this we scrambled, jumping ravines, logs and bushes; the lava, as liquid as water roaring down that same valley above us, making a quarter mile while we made a hundred feet.

It swept by us like a racehorse just as we mounted onto higher ground, and took the house and hill along with it. We escaped by a hair's-breadth, the clothes almost burned off from us by the hot air."

"And how long did it take the lava to reach the ocean? Was there no stock saved?" he was asked.

"In just one hour it poured into the sea—ten miles away—plain nearly level, too. When fire met water I tell you the commotion was terrific; it sounded like a cannonade between all the navies of the world. Two great cones of black sand were thrown up. Our family horse was saved by a miracle. He was tied with a lariat and the lava burned it off the tree. He came the same trick we did, crossed the little valley below and joined us on high ground. We saw the cattle overtaken by the lava, and puff! a little blast of steam! and they were reduced to ashes. Six were surrounded on a little island in the fire river. It was ten days before the lava crust was thick enough to get them over it. One Kanaka family escaped as by miracle; their thatch house surrounded by hot a-a piled as high as your head. Several times the house caught fire. In two weeks the lava flow stopped and turned dead. But enough smoke and sulphur were thrown out to fill the air around for a thousand miles, thick as pea-soup. That lava was white-hot, like a river of milk; dazzled your eyes like the sun."

The lava flow of 1880 was the most persistent and destructive of the volcano's many eruptions. On November 5th a bright spot like the star Sirius was was seen a few miles from the summit by the people of Hilo, fifty miles distant. It soon burst into full

view as a magnificent river, nearly a mile wide, twenty feet deep, and so brilliant that it rivalled the light of the sun. For thirty miles it plunged forward until it reached the base of Mauna Kea, and there spread out like a vast lake of fire. Then from another point a second stream started to the southeast toward Kilauea crater. In a few days a third rift opened high up on Mauna Loa, and rolled with a wide current directly into the great tropical forest and cut its way in a zigzag course directly toward Hilo. The people of the town were in consternation.

Just here it may interest the reader to learn how a Mauna Loa fire stream travels. The vent is always below the summit, for the two craters are too vast and deep to fill up and overflow. At first the lava ejected is more than white hot, having the dazzling brilliancy of the sun. Its liquidity is equal to that of water. With a terrific force it dashes down the mountain side, tearing away boulders, ridges, and even hills, cliffs and scoria cones. Rocks, earth and a-a fields are borne away on its surface like drift-wood and leaves on a freshet. The initial velocity is from ten to twenty miles an hour. It cools rapidly by exposure to the air, and after the first hour becomes sluggish and ropy, worming and writhing its way along the ground like the folds of a boa constrictor. In consistence it resembles thin mortar and has the color and texture of molasses candy before pulling. It is a hundred times hotter, however. Now it is on more level ground and its progress slow but mighty and irresistible. Sometimes it is six miles wide. A thick black crust forms on its surface like ice, and

under this blanket the white hot stream flows on, fed from the fountain head through great tunnels burrowed out beneath the crust. River beds, deep canyons, and fissures are filled up to a high level as it advances. When a forest or swampy ground is invaded the phenomena are terrific and marvelous indeed; the explosions are heard for many miles and the lava boils and surges like a huge caldron.

In a forest of large trees the lava surrounds the trunks and hardens. Then the trees burn down to the roots and a strange sight is presented; the hardened lava is like the top of a pepper box, with round chimneys perhaps ten or twenty feet deep. When the fountain head ceases to pour out lava, the tunnels and caverns are emptied, and may later be entered and followed, sometimes for many miles. The tablelands and slopes of Mauna Loa are honeycombed with these wonderful grottoes.

Returning to the flow of 1880-81; the stream burned its way slowly through the impenetrable forest for months, covering several hundred square miles. Thousands of tourists flocked thitherward from all parts of the world. The lava flow licked up rivers, mountain villages and coffee plantations. So terrific was the heat that Hilo district, where normally rains fall every day of the year, was parched with drouth for nine months.

On June 7th the flow was five miles from Hilo, in several streams, one of them pushing straight for the town. The populace was panic stricken. Many abandoned their homes and moved their effects. On the 26th a lava lake which had been forming, burst

away and the fiery current poured rapidly down a river bed nearly into the town. A day of solemn prayer and supplication was observed by the whole populace. It was thought only a miracle could save their homes. Soon the hadean fires had entered the very suburbs. The explosions averaged fifteen a minute; the progress was 500 feet a day, and the river's length was fifty miles. Mauna Loa was vomiting millions of tons daily.

But the prayers of the Hiloans were heard. At the very gates of the city the river stopped and turned back. The fires of the volcano suddenly ceased, just nine months and five days from the first outbreak. One more day's action and the lava would have swept over the town and destroyed the harbor.

Kilauea, the best known of all the great craters is on the southern flank of Mauna Loa at an elevation of about 4,000 feet. It is quite accessible and visited by thousands of tourists. A railroad runs within a few miles of the rim. But the summit crater, twenty miles up through the clouds, is very hard to reach, owing to the rarity of the air and the maze of old and jagged lava flows that cross and recross each other in zigzags of all varieties.

The following description condensed from the narrative of an eye witness will interest the reader:

With four mules we left the Kilauea volcano house to climb to the summit crater. Every now and then the clouds would break away and the black dome of Mauna Loa peered through, dazzling our eyes with the snow banks, nestling in its canyon like ravines. Below us was a table land many miles in extent, the

playground of the fire demons, spotted with craters and gashed with fissures, emitting steam and smoke of brimstone. The whole region is black with streams of spiked lava meandering over it, with charred stumps of trees rising out of them.

Our trail wound upward through young forests of Hawaiian mahogany and sandal-wood. Further up we picked our way over waves, coils and hummocks of pahoehoe and red volcano sand. Horrid cracks fifty or sixty feet wide abounded, probably made by the earthquakes of ancient convulsions. A black chasm of most infernal aspect dogged our ascent on the left. Progress was desperately slow, but it was up and up, and one scramble followed another. The mules were nimble, but devoted much attention to getting up rows, kicking and entangling their legs in the lariats. The only living being we encountered during the day was a wild bull, who, tearing down the mountain side, crossed the trail in front of us. Our pack-mules stampeded with terror, and were not relassoed for an hour.

The serious incident of the day was an earthquake. While I was nerved for any volcanic catastrophe I humbly confess that this event was a surprise party. It came without warning, and I was pitched over my horse's head by his sudden fall to the ground. There seemed to be a fearful throbbing and rumbling beneath our feet; the trees and grass swayed wildly, great rocks were dislodged and bounded down the hillside, the earth reeled as if struck by a wave in mid-ocean. No one said a word, and after a few moments of profound stillness, in which each of us held his breath,

the earth then reeled again with still greater violence. Within an hour later there were four more minor shocks. The first one produced a feeling of nausea, faintness and dread, but after this experience the several shocks I passed through on the island only brought a sense of exhilaration. I think I could prescribe them as the doctors do strychnine, for an excellent nerve tonic.

Through this jagged waste of fissures and lava we dragged along for seven hours, part of the time among the dense clouds that rolled around the mountain, clothing it in a murky wet shroud. So thick was this fog of the high altitudes that I was quite willing to stay within kicking range of the mules for fear of becoming lost. Toward night we arrived at a corral, built of lava slabs, for the half wild cattle that roam the mountain. Here in a Kanaka house thatched with wild grass we were entertained in mountain style by several half white wild-bullock catchers. They fed us on jerked beef, wild goat steaks and goat's milk. We ate squatting on a floor of natural smooth pahoehoe, around a calabash of poi, into which all dipped their fingers in common. The air was chilly, almost frosty, but we rolled up in our blankets and slept the sleep of the just. By a careful and conservative estimate no less than a million fleas assisted in our entertainment. We could hear the baying of wild dogs through the night, as they pursued their quarries on the mountain side.

The next morning we engaged as guide a Kanaka goat catcher. We also secured fresh mules from the rancheros, not because our own had given out, but for

the reason that the ranch mules were better accustomed to the rarefied air of the high altitudes. These much maligned animals, as nimble as goats and monkeys, took us to the summit and back over the trackless and horrid waste of jagged lava slabs and boulders, enduring hunger, thirst and frost without a murmur.

The forest here was half dead and hung with long, yellow moss, which gave the trees the semblance of oaks in New England when festooned with frost rime. There was a plenty of very coarse grass, but the trees grew smaller and smaller as we mounted above the clouds. Before noon we reached the timber line, and here a halt was made to give our animals the last feed, and to gather a packload of firewood. We also did some tea-making, egg-boiling and other cooking that required the heating of water. This we had been warned to do, because no plants, living or dead, are found on the summit, and the air is so rare that water evaporates before it reaches the heat necessary to cook with.

And now we found that the real business of the ascent had only begun; our desperate scrambles up to that point were mere child play compared to the dangerous gymnastics entailed upon ourselves and beasts in the last twelve miles.

Now we entered upon the vast uplands of pahoehoe, which rise 5,000 feet above the timber line and occupy an area of more than 150 square miles. Imagine the ocean lashed into choppy billows, forty to sixty feet in height, suddenly congealed into black jagged rock, and you have a partial conception of the

roughness we encountered. In every direction these broken surges, tossed and twisted into a thousand fantastic shapes, wearied our eyes and struck terror to our hearts. Broken lava of all kinds, from the compact boulders of phonolite to the lightest a-a and pumice stone, the mere froth of the volcano, was strewn around, the whole exceeding in wildness and confusion the most extravagant nightmare ever inflicted on man.

Recollect the vastness of this mountain. It occupies an area of two thousand square miles, is nearly two hundred miles in circumference at its base. It rises nearly three miles into the air. A large part of its area is a frightful desert, at once the creation and the prey of fire, the mightiest force of the universe. Struggling, slipping, tumbling, jumping, ledge after ledge was surmounted; but still upheaved against the glittering sky and dazzling snows, rose new difficulties to be overcome. Immense bubbles had been heaved up by the forces of hades below, and bursting, now yawned like the jaws of death. Swift running rivers of more recent lava had cleft zigzag furrows through the older congealed billows. Massive flows had fallen in, exposing caverned depths of jagged outlines. Earthquakes had riven the mountain, splitting its sides and opening deep crevasses. These we must either leap or circumnavigate. Horrid streams of a-a or raspy porous lava somewhat resembling coke in texture and appearance, had to be continously skirted. These, after rushing remorselessly over the kindlier lavas, had heaped jagged pinnacles of brown scoria into impassable walls.

Winding around the bases of the fissured, tossed-up hummocks of pahoehoe, leaping from boulder to boulder and from one hummock to another, climbing up acclivities so steep that the pack-mule rolled backward twice, and my own catlike animal fell several times, moving cautiously over crusts that rang with a tomblike hollowness to the tread, stepping over deep cracks, which for aught we knew reached to the bottomless pit; traversing lava lakes, split by earthquakes into a thousand fissures; painfully toiling up huge mounds of scoria frothed with pumice stone, and again for miles surmounting a rolling ocean of billowy, ropy lava, we passed the long day under the tropic sun and the deep black sky.

The clouds now heaped themselves around the entire mountain in brilliant wavy masses, shutting off from view all the busy haunts of men, together with the black and smoking region of Kilauea crater, a hideous waste far below us. For the next twenty-four hours all the rest of the world was shut off, and we were alone in this trackless inanimate region of terror. It is the abode of Death.

I say inanimate, because in all that tableland of the higher sky, there is not a vestige of God's living world. Not a goat or a lizard; not a fly or a gnat, can find support in that barren hades of frost, rock and fire. Even the hardy plover, which one finds in arctic wastes as well as tropic island, were conspicuous by their entire absence. I found in one spot a puddle of fine dust wet with melting snow, and on my return examined a vial of it under a powerful microscope. There was absolutely not a trace of microbe or plant life in it.

One could well appreciate in this region the frightful desolation that exists on the surface of the moon.

We were evidently now on the extreme summit of the huge dome of Mauna Loa. Not a trace of the eruption or the great crater we were searching for could be seen. Far away, however, on the distant horizon rose a faint white column of smoke. We called a halt, reconnoitred and found our pulses beating at the rate of 100 a minute. We bathed our heads with snow, a precaution learned from expert mountaineers, and tried to eat some food, but our stomachs refused to accept it until hours after, when we were slightly inured to the rarefied air. We were suffering from the nausea of "mountain sickness." The cold was intense. No amount of wraps seemed to avail against it. We proceeded in silence, for even the effort of conversation seemed to sap our strength. For once our Kanakas ceased their interminable gabble.

Onward we toiled, painfully climbing interminable terraces and skirting black and seemingly bottomless fissures. Our mules were panting heavily, and our own breath came as from excoriated lungs.

Once only our guide went wrong, but recovered himself with great sagacity. "Wrong" on Mauna Loa means disaster—almost death—for to be lost in an impassable a-a field rent with a maze of fathomless fissures, would entail hours, perhaps days, of blind struggle with the raspy slag that cuts the feet and flesh at every turn. Notwithstanding its porosity, a-a is still a bristling aggregate of upright ragged adamantine points.

Towards night we came upon a fearful river of a-a that crossed our route at right angles and it was evident that we must conquer it or give up the expedition. Our mules did not mind leaping from boulder to boulder like goats, but when we compelled them to plunge into this seeming death trap I closed my eyes with dread. I never again will abuse or ridicule a mule, for did not my beautiful animal carry me safely over pitfalls and death traps for a quarter of a mile, in danger every minute of breaking his legs in crevices, slipping down glassy slabs, leaping knee deep into frothy pumice and scoria. The fear of the brave little animals was pathetic. They trembled and strained, cowered and shrank back, breathed hard, stumbled and plunged painfully. It was sickening to see their blood and torture while struggling and slipping into cracks. When finally we emerged their legs and bellies were torn and splashed with gore.

The westerning sun was now a red ball on the black horizon of the summit. A glad sound reached our ears, for we had feared the eruption was over. A hoarse angry roar in front told us that Pele, the goddess of fire, was attending strictly to business. We actually galloped a mile or two over a smooth plain of pahoehoe, until halted by a deep fissure filled with ice and snow. In a minute we had flung ourselves from the saddles, leaped the crevasse and climbed the ridge beyond and faced the awful crater of Mokuaweoweo. It yawned a thousand feet abruptly beneath us, with its opposite [illegible] nearly three miles away. The mystery was solved, for there in front of us was the fearfully grand and beautiful fire fountain, whose reflec-

tion for six weeks had been seen at a distance of more than a hundred miles. At that moment its height was more than three hundred feet.

Behind it was the blackness and desolation of the inaccessible crater. The column itself was a lofty pillar of brilliant white and yellow fire, far different from the gory gleams of the fountains of Kilauea, grand in themselves but mere pigmies in comparison with this.

For a while we held our breath with astonishment; we were dumb with admiration and awe.

A sight like this was worth a voyage around the globe. We felt that we, of all other mortals, had been singled out of the human race of a billion and a half, the fortunate observers of a phenomenon of nature the grandest and most sublime of any that had been witnessed by mortal man!

So different was it from all other sights, that the words of the English language fail to convey an adequate description; yet I am in duty bound to picture it as best I can.

Far above the region of the clouds, we stood on the pinnacle of Mauna Loa, the most tremendous active volcano known to man, one hundred and forty-four times as large as its noted sister volcano Vesuvius. At our feet lay Mokuaweoweo, the most violent and vindictive of all the craters of the globe. From her abysses have been hurled rivers of fire thirty to forty miles in length. The volume of liquid rock ejected would cover the state of Ohio several feet deep.

The fire fountain, the crowning glory of glories, was continually changing in size and aspect. Now it was

one pillar, a hundred and fifty feet in diameter, like a huge Arizona cactus. Then it would separate itself into individual columns joined by red upward surges at their base. Again it would slowly die down until it almost disappeared in the red surf that was washing from side to side of the fiery lake.

"Pele has gone to bed, the show is over for to-night," said one of the party.

Hardly were the words out of his mouth when there was a terrific roar, and a white hot pyramid shot into the air, huger than ever, and mounted a hundred feet, then two, three, four, five and finally reached an altitude of six hundred feet and broke into a sheaf of golden spray that fell for many minutes, laterally from the dizzy height in curves to the limits of the lake. Though it was nearly three-quarters of a mile away we could feel the fiery breath of the goddess in our faces, and heard the crash and swash of the falling fragments (congealed in the air) like hailstones hurtling into a bed of autumn leaves.

The crater was apparently divided into two lakes, that in which the fountain played, and a further one at the crater's end, and lower in level. Into the latter the lava, welling up with the fountain, was slowly pouring in a horseshoe Niagara of yellow fire. As the sky over our heads blackened and darkness fell swiftly into this awful home of the fire gods and Pele, the whole dead floor of the crater burst into life and activity. A thousand fissures came into view, with little lakes and pits and cones, whence gleamed fitful flashes of light, reddish-green, yellow and ghastly white, reflections of the fiery industry going on with ceaseless

energy below. We could imagine it to be a mighty iron foundry wherein the demons and geneii of Vulcan (or the devil himself) were plying their hadean trades. We could plainly hear the bellowing of the blasts, the thuds of the trip hammers, the wish of forges and the clanging of huge furnace doors.

And now the fountain again shot up. This time it was a pyramid of molten gold alternately falling into the center and then outwards like a sheaf of ripe oats. The corruscations gleamed as the stars of a bursting rocket when the hot rocks exploded and scattered over the broken surface of the lake.

The scene again changed. The fountain was divided into several columns, and they launched hundreds of feet into the air, descending and falling with marvelous velocity. The great cauldron boiled from cliff to cliff and angry red waves like the billows of the ocean, dashed themselves from bank to bank. Under the cliffs we could look far into caverns dripping with red lava, through which the waves swirled and bellowed like the mighty "bulls of Bashan." Again all was quiet. The whole lake blackened over from edge to edge for a few minutes. A sudden roar and a mile of black ice cracked into a thousand slabs, rocking and crashing against each other. One by one they stood on their ends and sank down into the bottomless pit. Then the fountain played again.

The largest volcano crater in the world is Haleakala (the house of the seed), Island of Maui, Hawaiian group. It has been extinct for ages, but so high is the elevation (10,000 feet) and so dry the air, that the

latest flow of lava—pahoehoe—is as fresh and black as when first vomited forth many thousand years ago.

The crater occupies the whole summit of the huge mountain. It is 2,000 feet deep (nearly perpendicular), ten miles long and five miles broad. It could accommodate the city of Chicago and some of its suburbs. To make a tour of its rim would require a three days' journey. The floor or bottom of the crater is a scene of wild chaos, deep fissures, black lava flows, canyons, mountains of brick colored scoria, smooth cones of red cinders, banks of ashes a thousand feet high, jagged cliffs and yawning crater holes. Some of the cinder cones are five hundred feet high, but look like ant hills from the lofty crater rim. The cloud effects of Haleakala are the grandest in the world. From over the ocean come regiments of white feathery banks in long lines likes flocks of wild geese. They storm the mountain heights and pour over the crater's rim in huge Niagaras of eider-down. Then they fill the great chasm to its rim and boil and seethe like white froth swirling in a mighty caldron. They rise, and you find yourself alone on a peak, shut out from the world below. You gaze abroad and see nothing above but the blue bleak sky, and below you, in the cloud effects, oceans of white glaciers, snow banks, icebergs and ice gorges for a hundred miles in every direction. When the sun rises the clouds shape themselves into a huge panorama of the Himalayas and Andes, interspersed with minarets of gold, castles and battlements of white silver, dark ravines laden with fallen snow; forests of rose colored pines, and Egyptian pyramids in purple and olive green.

VESUVIUS RAINING MUD AND ASHES.
This photograph, taken April 6, immediately following the eruption and showing the quantities of mud and ashes which preceded the overflow of lava.

VESUVIUS POURING FORTH MOLTEN LAVA.

A stream of lava overflowing the vineyards to Bon Trecase. This whole province was practically buried many feet deep and the farms and vineyards destroyed. The photograph was taken April 8, 1906, four days after the first eruption.

CHAPTER XXX

DISASTERS BY EARTHQUAKE AND FLOOD

Charleston, South Carolina, Partly Destroyed by Quake in 1886—Fearful Flood in Conemaugh Valley that Wiped Out Johnstown and Killed 2,280 Persons—Galveston Devastated by Tremendous Storm that Drove Waters of the Gulf Over the City, Blotting Out 8,000 Lives—Notable Seismic Convulsions in South and Central America and Asia.

Among the earthquakes that have been experienced in the United States, the one which shattered Charleston, South Carolina, in 1886 ranks second only to the recent seismic convulsion in California. In that disaster forty people were killed, and property valued at $5,000,000 was destroyed. The city was virtually ruined. Business blocks were thrown down and most of the residences were so shaken that they were unsafe for habitation. Railroads and telegraph lines were wrecked and numerous fires broke out and added to the devastation.

Nature gave a slight warning of this catastrophe, for on the morning of August 28th a shock was felt throughout the states of North and South Carolina, but the tremor aroused no apprehension. The tremendous convulsion that wrecked the city of Charleston came at 10 o'clock on the night of August 31st. It was followed by nine lesser shocks. The earth-

quake was felt throughout the country between the Mississippi River and the Atlantic Ocean and as far north as Michigan.

The people of Charleston rushed into the streets of their tottering city, screaming, praying and vainly seeking refuge. Tall buildings toppled over on them, burying many in the debris, and some of these unfortunates who were not killed by the falling walls were burned to death by the flames that soon broke out.

The people of the United States contributed prompt aid for the Charleston sufferers in the way of money, food and clothing, and within a comparatively short time the city had quite recovered from the effects of the catastrophe.

Another instance of swift and sudden death and destruction in America was the flood that swept down the Conemaugh Valley in Pennsylvania on May 31, 1889. It brought death to about 2,280 persons and destroyed $10,000,000 of property. The beautiful and rich valley was turned into a scene of utter devastation and the city of Johnstown and numerous smaller towns were wiped out.

The Conemaugh Valley is on the western slope of the Alleghany Mountains and extends from Florence southeast to Johnstown, a distance of sixteen miles, and from there northeast to South Fork. At the head of a lateral valley, about six miles from South Fork, was the Conemaugh Lake reservoir, owned by a Pittsburg hunting and fishing club. It was two and one-half miles long by one and one-half miles wide, and was the largest reservoir in the United States. The great volume of water was confined by a dam 1,000 feet long,

110 feet high and nearly a hundred feet wide at the base. The people of the valley had long been afraid this dam would give way before some spring flood, and that was what happened. There had been long and heavy rains and on the afternoon of May 31, despite efforts to relieve the pressure by opening sluiceways, the center of the dam broke.

In one hour the reservoir was empty and the tremendous body of water went racing down the valley with incredible rapidity. Buildings, trees, rocks—everything was swept along in that awful flood. The waters reached Johnstown, about eighteen miles from the lake, in seven minutes and the horrors that ensued in that city were beyond description. The debris carried by the flood battered to pieces everything the water did not wash away, and few of the inhabitants had time to escape.

Galveston, Texas, was the victim of a terrible visitation on Saturday, September 8th, 1900, when a most violent gale drove the waters of the Gulf of Mexico over the city in a devastating flood. Probably 8,000 persons perished, though the exact number never could be known, for the receding waters carried countless bodies out to sea. Nearly seventy blocks in the best part of the city were razed and enormous damage was done to other sections by the force of the flood and the wreckage it carried inland. In six hours the wind and water had finished their awful work, but for days afterward the horror of it increased. Hundreds of corpses were to be seen floating about in the bay, and hundreds more were buried under a long ridge of debris that had been heaped up at the back of the city by the

gale and the flood. Robbers and ghouls prowled about the wrecked city and could not be stopped in their horrid work by the most drastic measures. Martial law was proclaimed and several regiments were hurried in from other cities, but even the soldiers could not preserve order, though they killed more than a hundred looters. At night bonfires were lighted at many points by the troops, and in these weird surroundings many negro vandals who had been caught were tried by courtmartial and promptly executed.

The task of gathering up the dead and injured from the streets was carried out with the utmost rapidity, because of the danger that pestilence would break out. The bodies of many of those who had perished were taken in drays to the wharves, loaded on tugs and taken out and sunk in the gulf.

Along the waterfront the ruin was absolute. The big warehouses were crushed and their contents washed out into the streets. Ocean steamers, tugs and sailing vessels were carried far up onto the piers or jammed into buildings, and left there, hopeless wrecks.

All the country contributed to the relief of Galveston, and the city has been built, better than before, and guarded against a recurrence of the disaster. The grade of the city has been raised many feet and a massive sea wall protects it from the waters of the gulf.

Earthquakes are of very frequent occurrence in Central and South America. The first to be recorded after the coming of Columbus was in 1530, when Cumana, Venezuela, was severely shocked and the waters of the Gulf of Paria rose in a big tidal wave, twenty-five

feet high. This convulsion split in two a mountain near the Gulf of Caracas. In Peru there was a big earthquake in 1586 and the coast was swept by a tremendous wave. Another seismic shock disturbed the same country in 1687, and yet a third in 1746. On the latter occasion Lima and four other coast cities were devastated by sea-waves and a new bay was formed at Callao by the sinking of the land.

Chili has been visited by many destructive earthquakes, one of the worst being in May, 1751, when the city of Concepcion was overwhelmed by the sea. Its port was abandoned and the city was rebuilt ten miles inland. The same tidal wave wiped out a colony that had been established on the island of Juan Fernandez.

Cumana, Caracas, was overthrown a second time in 1776, by severe and long continued shocks that affected all the surrounding country and the island of Trinidad.

In 1797 there occurred a terrible earthquake in Ecuador that quite ruined the town of Riobamba and many villages in the vicinity of the volcano of Tunguranagua. Humboldt investigated this catastrophe and declared that the vertical movements of the earthquake were most extraordinary. He said the bodies of some of the inhabitants were thrown over a stream onto a hill several hundred feet high. There were enormous fissures in the earth and many persons and even houses were swallowed in them. It was estimated that at least 40,000 persons were killed in the district affected. Many churches that were crowded with worshippers collapsed, nearly every occupant perishing. One village school at St. Philip sank into the earth with forty children.

Caracas, the capital of Venezuela, had its worst visitation in 1812. The entire city was laid in ruins and about 10,000 persons perished. The big churches of Alta Gracia and the trinity fell into heaps of debris and the military barracks of San Carlos, with a regiment of soldiers, sank into a great fissure of the earth. The survivors suffered the greatest distress for many weeks after the convulsion. Both food and water were hard to get, and the few houses that had not fallen were too badly shattered to be occupied. Thousands of corpses were cremated.

This earthquake also destroyed the towns of La Guayra, Baruta, Maiquetia, Antimano and Merida, and others in the northern part of Venezuela, the loss of life in these places being very large.

The next disastrous seismic convulsions in South America were in November, 1822, when Chili suffered severely. Valparaiso and other cities were ruined and the coast for many miles was raised several feet. Valparaiso was damaged badly by other shocks in 1875.

Every country in the mountainous portions of South America has suffered at one time or another from earthquakes, Peru, Bolivia and Ecuador being visited with many disastrous shocks in the year 1868, when 20,000 lives were lost.

Convulsions of nature are frequent in Central America, also. There are many volcanoes there, and they are blamed for the earthquakes. Those in Nicaragua have been especially active.

San Salvador, capital of the little republic of San Salvador, was overthrown by an earthquake in 1854. Scarcely a building escaped and about 5,000 people

were killed. Many of the residents, however, had taken warning by a previous shock and sought open places, saving their lives. Another convulsion occurred in this republic in 1878, when a number of towns were wrecked and the loss of life was large. Guatemala, too, has frequent shocks, some of them exceedingly disastrous.

Mexico has suffered severely from earthquakes in the last century, though in most cases the loss of life has not been large. In 1835 Acapulco was reduced to ruins and in 1845 the City of Mexico experienced some very violent shocks that wrecked a number of large buildings. In 1858 and again in 1870 our sister republic was visited with destructive earthquakes, and milder seismic shocks are of almost daily occurrence in some part of the country.

In recent years there have been destructive earthquakes in Cashmere, Bengal, Assam and Asia Minor.

In Japan earthquakes occur so frequently as to attract little attention save when they are especially severe. From 1780 to 1800 there was a succession of convulsions there that are said to have cost as many as 50,000 lives. In northern Japan there was a terrible earthquake in 1888, and central Japan was fearfully shaken in 1891 when about 20,000 persons perished.

CHAPTER XXXI

HOW EARTHQUAKES AFFECT THE GLOBE

Professor Garret P. Servis, the Distinguished Astronomer Gives an Easy-to-Understand Explanation—Earth, Weighted at the Poles with Ice, Sinks and Rises Causing Tremendous Strain—The Globe Cracks With the Overpowering Weight—Strange and Uncanny Things That Earthquakes Do—What Portions of the United States Are Immune From Earthquake Shocks.

Since man began to speculate upon the wonders of nature the quakes of the earth at intervals have been the cause of his greatest wonder and fear. Primitive people made gods of the invisible forces that shook the mighty globe under their feet, and spouted forth molten masses from the interior of the mountains to sweep away whole tribes at a breath.

Science is yet very much at sea regarding the real cause of seismic disturbances. Learned men rarely agree in their explanations of these phenomena. One of the most interesting writers on scientific subjects is Professor Garret P. Servis. He has the faculty of laying before the reader not conversant with scientific terms his ideas in simple and straightforward English. In a recent article on the San Francisco earthquake printed in the New York Journal, he goes to some length to describe the cause, as he understands it, of

these terrible outbursts of the earth's strength and fury.

" The two tremendous convulsions," he says, " which within a fortnight have laid waste the environs of Vesuvius and temporarily wiped out of existence one of the greatest cities on the American continent have brought to the front a theory of the cause of earthquakes and of volcanic action that presents our revolving globe to us in an entirely new and a very startling light. According to this theory, the cataclysms referred to were caused by the earth, as it whirls on its 8,000-mile axis, getting a little off its centre, like an ill-balanced wheel, and striving, with a sudden shift, to recover its equilibrium.

" It has been known for a score of years past that the axis of rotation of the earth has what may best be described as a ' wobble.' By carefully watching the direction of certain stars astronomers have found that the ends of the earth's axis do not always point toward exactly the same opposite spots in the sky, but swing about a little, thus introducing lost motion into the territorial mechanism. When the axis sways out of its mean position the effect upon the earth must be similar to that produced in a balance wheel that is a little loose on its axle. A very sudden change of this kind would knock everything to pieces on the surface of the earth, send the oceans roaring over the borders of the continents, and involve the whole force of the globe in ruin.

" Fortunately the changes, while in some cases rapid, do not occur in the manner of jolts. The earth's axis of rotation swings with a somewhat gradual motion,

now approaching its mean position, which corresponds with the geographical axis running through what we call the North and South poles, and again departing from it. The amount of departure never amounts to more than about sixty feet as measured on the earth's surface at one of the poles, and on the average it is not more than half of that amount. This, however, is quite sufficient to produce (even though the change from one position of the axis to another is not brought about instantaneously) very great effects upon the earth.

"One can easily imagine that a globe 8,000 miles in diameter, and weighing no less than six sextillions of tons—an inconceivable number!—whirling about an axis so swiftly that a point on its equator travels more than a thousand miles an hour, cannot have its axis shifted, however little, without feeling the strain throughout its enormous bulk. A great steel flywheel if overweighted on one side may be caused to burst asunder through the effects of the unbalanced forces.

"How, then, can the massive earth experience such an effect without disastrous consequences? This, in brief, is the argument of those who hold the view that the recent cataclysms in the Old World and the New are due to the wobbling of the earth's axis. They aver that the erratic motion, reacting upon the interior of the great globe, must necessarily strain the subterranean rocks, thus producing volcanic eruptions and earthquakes. Professor John Milne, the distinguished expert in earthquake studies, is represented as urging this view in opposition to the generally accepted opinion of geologists that seismic disturbances result only from readjustments of the crust of the globe in conse-

quence of the gradual cooling and shrinking of its interior.

"But the question then arises: To what cause is the unbalancing of the earth, resulting in the wobbling of its axis, to be ascribed? Sir Norman Lockyer, the English astronomer, is quoted as replying that it is due indirectly to the present sunspot maximum, which has vastly increased the amount of solar energy exerted upon the earth, and directly to the melting away of the snows about one of the earth's poles consequent upon that increase of solar action. This, it is averred, is sufficient to remove from its ordinary place about the pole a weight of ice and snow represented by incalculable millions of tons. The water formed by melting is swept equatorward through the oceans, in consequence of centrifugal tendency, and thus one end of the earth's surface is rendered sensibly lighter than the other, and a swinging and wobbling of the great axis results. Others are disposed to attribute the cause of the change in the axis to alterations in the distribution of the internal matter of the globe. The result, in either case, would be virtually the same.

"In view of this hypothesis it becomes interesting to inquire: At which pole has the melting of the ice occurred? The reply plainly is: At the South Pole, because the recent intense activity of the sun, as revealed by the presence of gigantic spots upon its surface, occurred during the summer of the southern hemisphere, at the time when the South Polar regions were presented toward the sun, and also at a time when the earth was about three million miles nearer to the sun than it will be next July. That there may be truth in

the idea that the solar radiation has been extraordinarily effective in its action upon the vast accumulation of ice on the Antarctic continent is indicated by the fact that the past winter has been one of unusual mildness throughout the northern hemisphere. This being the case, we may well suppose that the corresponding summer in the southern hemisphere has been uncommonly hot.

"Granting, then, the asserted lightening of the South Polar end of the earth from the causes mentioned, an increase of the wobbling of the axis should naturally result, and upon this, according to the hypothesis, the sudden cataclysmal outburst of subterranean forces is due. If the theory is correct we must be thankful that the earth's axis does not fall from one position into another with a sudden jerk, for if it did there might be no one left alive to record the awful consequences!

"It is to be noted, in connection with the foregoing, that the unusual activity of the sun has not yet ceased, and that if it should continue during the coming summer to pour upon us an uncommon quantity of heat, the obvious consequence would be to melt away the Arctic ice and snow also, and thus, by removing weight from the northern axial end of the planet, to restore the balance, upset by what had occurred at the southern end. With this restoration the axis of rotation would tend to resume its mean position, although the change back again might result in fresh internal disturbances.

"There are also some who, like the Abbe Moreux, of the Bourges Observatory, France, attribute earthquakes and volcanic eruptions to a more direct influence of the sun upon the earth at maximum periods of

sun-spottedness. But they have not succeeded in making it clear how this supposed influence is exerted, ascribing it in a general way to changes of electric potential and to atmospheric influences. It must be said in fairness to the Abbe Moreux, however, that as long ago as last October he predicted that 'as the solar activity will shortly diminish, it is highly probable that we shall have to record earthquakes toward March or April next.' This may be regarded either as a happy coincidence or as a true example of scientific foresight, according as the theory of solar influence upon the seismic conditions of the earth shall stand or fall in the light of subsequent research.

"But quite independent of this explanation of the San Francisco earthquake by such distinguished scientists as I have already named—Professor Milne, Sir John Lockyer, Abbe Moreux and others—we may briefly consider here the commonly accepted scientific explanation of the earthquakes which are so frequently felt from day to day in various parts of the earth.

"The great primary cause of all earthquakes, and of volcanic eruptions, is the gradual, or so-called secular, shrinking of the body of the earth. Our globe is like a shrivelled apple, whose outer peel has been thrown into a thousand wrinkles by the shrinkage of the central core. As the shrinkage is still going on the wrinkling of the surface continues. When the shrinkage ceases the globe will be dead, like the moon, but then also life will practically cease upon the surface, for the water will be withdrawn into the interior, and the atmosphere will be profoundly changed in composition, and may largely disappear. The moon shows us what we are

coming to, and Mars, perhaps, represents an intermediate stage of planetary decline.

"After a series of great earthquakes and volcanic explosions there is a change in the level of certain portions of the earth's crust. The rocks have settled together, and they will resist further changes until the shrinking beneath has gone on so far that the power of resistance is no longer sufficient to prevent a catastrophe. Then another break or slip, and consequent settling, occurs, and the rock crust is rent and shaken once more.

"The local results of these changes, however, are not always a lowering of the level at the surface. Taking the globe as a whole, it must be gradually, very, very slowly, getting smaller; but in certain localities its crust is thrust up higher, just as there are local elevations on the rind of a shrivelling apple, although taken altogether the apple shrinks in size.

"It is usually in the places where such up-thrusts occur that earthquakes are most violent. These places lie along lines of weakness, or what may be called immense cracks and fissures of the earth's crust. There the crust, having once been broken, does not mend again, and every successive disturbance occurring beneath it reopens the old wound.

"It was the misfortune of San Francisco to be situated very close to one of these fissures. There is a line of old volcanoes following the Pacific Coast from Alaska southward, and off the shore of California there is an abrupt deepening of the ocean bottom, corresponding to a line of fracture in the earth's crust. This line follows in a general way the whole western edge of the American continent, and whenever there is a

deep-seated convulsion in the interior of the globe, this huge crack is wrenched and the rocks strain and groan under the tremendous forces to which they are subjected. Then, at one point or another, or perhaps at several points nearly simultaneously, a break, or a slip, occurs, and an earthquake instantly follows."

When one begins to speculate upon earthquakes the first question that presents itself is: Why is it that certain localities have a perpetual pest of earthquakes while other spots are disturbed only once or twice during all historical and legendary times. Geologists believe the strength of the earth's crust determines the matter.

The crust is not necessarily thicker in Colorado or Wyoming where something confers practical immunity than in California, where earthquakes big and little are known to every one. But the mountainous structure of the unshaken states doubtless runs down firm and without flaw to the molten rock layer which lies between the cooled crust and the glowing centre of the earth which is held solid by pressure.

As the cooling processes go on, shrinking must occur. The molten layer reduces its outward pressure from year to year and the pressure of atmosphere and crust itself must make it give periodically in its weakest places.

Where great solid beds of rock support the surface the molten layer may retreat and leave a sort of arch above it capable of resisting gravity for a long time. When once the earth gives way in any spot it has a tendency to break there again.

Along the Pacific Coast geologists have located

what they call a fault. It is like a broken piece in a man's skull. The atmospheric pressure forces it down whenever the fluids beneath permit.

If it fell all at once there would be one terrible earthquake which would probably knock down every building in the world. Tidal waves would surge across the continents and only a few mountaineers would escape death.

Instead it slips here and there a few feet at a time and the scraping of the edges of the wound sends out vibrations of varying strength. Most of them are tremors only discernible by delicate instruments. Occasionally an extra large area, long undermined, is held up by an obstruction of some sort. When, at last, it gives way a powerful commotion is caused. Either a tidal wave sweeps the coasts or an earthquake shakes the land, such as felled San Francisco, or both occur. Washington, Oregon, California, Nevada, Arizona, and the southern half of New Mexico are involved in the great Pacific "fault," as is Mexico and most of Texas.

Idaho, Wyoming, Colorado, the eastern portions of South Dakota, Nebraska and Kansas and the northern half of New Mexico have little to fear from seismic disturbance.

From this line of immunity to the Atlantic coast a series of lesser faults make earthquakes possible at any time, though up to the time of the Charleston earthquake the Atlantic coast rested in fancied security.

Coasts and islands are favorite locations for faults, and ocean bottoms seem to be comparatively weak spots in the crust.

It is theoretically possible for a "fault" to heal and

THE DESTRUCTION CAUSED BY VESUVIUS.
A procession of the people bearing the Holy Picture among the ashes overspreading their vineyards, to ward off disaster. Photograph taken April 8, 1906

bring immunity to the surface districts, above and around it, but scientific study of the earth is not old enough to record such an event. In the meantime, in forecasting the probability of earthquakes, the past has proved an almost unfailing index of the future.

The libraries of the world are full of accounts of seismic disturbances. Since earthquakes began to be studied in the science observatories in the last fifty years, a mass of extraordinary facts have been collected, many of which have completely stumped the experts to explain.

It is an established fact, but not at all understood, that birds and animals can foretell the coming of an earthquake. Before the disturbances in Chili in 1822 and 1835 immense flocks of sea birds flew screeching about as if crazed with alarm several hours before the shocks began. At the same time it was noticed that all the dogs sneaked out of the doomed city of Talcahuano and safely reached the open country before the earth tremors began.

Some of the natives of Caracas possess oracular quadrupeds, such as cats, dogs and jerboas, which seem to have the unaccountable faculty of anticipating coming earthquakes. The natives watch these animals and whenever they exhibit their peculiar spasms of uneasiness the alarm is sounded and the natives flee to the open country.

If a person is out of doors and walking an earthquake sufficiently strong to unroof houses and knock down chimneys may pass unnoticed. Yet a much slighter tremor will terrify any one in the top of a tall build-

ing on account of the exaggerated angular movement given by the building's height.

The surface of the earth has been known to actually move backward and forward a distance of six feet. When the vibrations are strong enough to cause a greater wave motion than this the limit of the earth's elasticity is exceeded and the ground breaks in great cracks of immense depth. Almost all large earthquakes have produced these.

It often happens that these fissures are many feet in width. At the Calabrian upheaval of 1783, one or two of the crevices were more than one hundred feet wide and two hundred feet deep.

Human beings, animals, houses, and even boats have been swallowed up by these cracks and fallen to destruction in the bowels of the earth.

People fleeing from an earthquake have had the ground yawn beneath them long enough to engulf them and then close up, leaving no sign. In the village of San Antonio, in the Philippines, a child fell into a small crack which instantly closed. Its parents later dug down a short distance and found the body crushed beyond recognition.

Boiling water, noxious fumes and sometimes flames belch from the cracks to an immense height. At the time of the Jamaica earthquake men who had fallen into crevices were later shot up from the depths on a flood of boiling water. Salt water gushed up in Sicily in 1692.

Fish were killed along the coast of New Zealand in 1855. Unbearable sulphurous fumes poured out of the ground during the Jamaica earthquake which caused

a general sickness from which 3,000 persons died. Wherever these fumes came in contact with flame they took fire.

An intense reddish light sometimes streams from these cracks when there is no sign of flames.

Lakes are disturbed during even distant shocks. While Lisbon was being destroyed not only European lakes, but those in America were agitated by huge waves. The Thames river during the shocks of 1158, dried up for a time so that it could be crossed on foot even at London.

The baths at Topitz, Bohemia, which are known to have flowed evenly since their discovery, A. D. 762, boiled over at the first shock of the Lisbon earthquake. Then the spring grew muddy, stopped for a minute, belched quantities of red ochre and finally returned to its original flow.

In wells water often rises to the top and flows over. In other cases they dry up. In Neufchatel many wells filled with mud.

In the great earthquake of Concepcion in 1835, the neighboring coast line suddenly rose five feet above sea level. Later it sank three feet. A rocky flat off the island of Santa Maria rose with a roaring sound above high water mark and remained covered with gaping and putrefying mussel shells still attached to the bed upon which they had lived. The island of Lemus, in the Chronos Archipelago was suddenly elevated eight feet.

A convulsion of the rocky crust in the valley of the Mississippi, near the mouth of the Ohio, formed lakes twenty miles long in the course of an hour.

The little territory of Causa Nova, in Calabria, sank twenty-nine feet during an earthquake without throwing down a single house.

Sometimes these changes have taken place gradually and sometimes with violence. Mountains have been toppled over, valleys have been filled, cities have been submerged or buried.

Shocks are rarely felt deep in the earth. At the Comstock Lode in Colorado, however, twenty-four shocks were once felt. In Virginia City, in 1882, an earthquake almost strong enough to be destructive was felt on the surface, while in the mines it was barely perceptible.

An earthquake starts on its journey like a cannon ball at its highest speed. The further it goes the slower it travels. The preliminary tremors which may be waves of compression travel much faster than the main shock. The sidewise wriggling motion is the most persistent of all and travels farthest, but not fastest.

Buildings and other objects destroyed by earthquakes fall according to fixed laws. When a house tumbles down it falls to the side which has most doors and windows. It never falls on the side where the masonry is unweakened by openings. Walls at right angles to the direction taken by the shock are more likely to be overthrown than those parallel to it.

When walls of houses crack the crack always takes in as many doors and windows as possible. Light bodies are as easily overturned as heavy ones. Mallet records that several haystacks were overturned during an earthquake at Naples.

Severe earthquakes will overturn houses bodily.

Japan, where earthquakes are frequent, has found earthquake proof buildings most necessary. Several light house towers are built with foundations resting on great steel shot. When the shock comes the building slides about on the shot and suffers no harm.

Flat-roofed houses, broad and low, with roof and upper walls light, are the best shock resisters. Many who live in constant dread of earthquakes rely upon the furniture of their rooms for protection in emergencies. Tables and bedsteads built with steel braces would supply a place of refuge from falling beams.

Earthquake lamps are so made that they will go out if upset. In South America many provident people have earthquake coats hanging near their door. The pockets are kept stocked with provisions and necessaries for a night spent in the open.

On hilltops the motion is less severe than in the valleys, which would seem to conflict with the exaggerated motion of the tops of buildings.

In certain parts of South America, there appear to exist tracts of ground which are practically exempt from earthquakes, whilst the whole country around is violently shaken. It would seem as if the shock passes beneath such a district as water passes beneath a bridge, and for this reason these places are called " earthquake bridges."

To a ship at anchor the vibrations of an earthquake are communicated by prodigious yanks on the cable. The crew of a warship in Yokohama harbor thought the vessel had grounded from the sound communicated through the cable. Vessels eighty miles at sea record-

ed the shocks like a series of sudden blows of projectiles.

Masts and cordage were broken on board ships in the harbor of New Pisco in 1716 though no disturbance of the water was visible. Other cases are known where cannon have jumped from the decks on which they rested.

Sea waves often accompany earthquakes if they originate out to sea. Sometimes these follow, but usually they precede the shock.

At the earthquake of St. Thomas the water receded before the first shock; after the second it returned with such force that it landed the U. S. ship Monongahela high and dry. Another American ship, the Wateree, was left a quarter of a mile inland the same year in Africa.

At the Jamaica earthquake the sea drew back more than a mile, and at Pisco it receded two miles and did not return for three hours. The greatest sea wave recorded was 210 feet high when it broke, in 1737, on the coast of Lupatka.

On land, earthquakes often cause fixed bodies, such as tombstones, obelisks, chimneys, etc., to rotate. Rows of trees are left zig-zag and out of order.

The greatest depth from which an earthquake can originate is estimated at thirty miles.

There are more than 400 known volcanoes, of which 225 are active. They are commonly in centres of earthquake disturbance. These disturbances usually run lengthwise of valleys and mountain chains seldom crossing them. Indian earthquakes have a direction parallel to the Valley of the Ganges.

It is estimated that 10,000 earthquakes originate each year, and that half start under the ocean.

Earthquakes have seasons. For northern hemisphere the maxima are in January, with also a slight prevalence in August and October. The fewest are in May, June and July. Shocks are more prevalent during the night.

After a severe shock there is usually a sudden fall of temperature. It is quite generally believed that the centre of the earth is solid from pressure and the outside crust from cooling. Between the two a viscous layer of molten matter is supposed to exist. Earthquakes would have their origin above this layer.

Looking at a straight stretch of railroad track during a shock the vibrations are clearly visible. They can be seen approaching with terrifying speed in the form of curves in the rails. The track looks like an immense wriggling serpant, and a train of cars wobbles and wriggles like a caterpillar unless thrown from the track.

The direct backward and forward motion is most destructive, though the combined wriggling and up and down motion is the most terrifying to the senses. Towers and the tops of flexible buildings move in a circular path.

The tremors of the San Francisco earthquake traveled to Washington, a distance of more than 3,000 miles, in less than eight minutes. The motion, when it reached Washington, was very slow and deliberate. Had the original shock been no faster it would not have been deemed worthy of a line in the newspapers.

CHAPTER XXXII

SOME FACTS ABOUT VOLCANOES AND EARTHQUAKES

Cause of Earthquakes and Volcanic Phenomena—"Downthrows"—Earthquakes Not Always Volcanic—Study of Crust-Vibrations—Japanese Are Expert Seismologists—Great Value of Substances Thrown Out by Volcanoes: Cinders; Lava; Hot Mud; Sulphur; Pumice.

Several theories of the earth's interior formation and the past and present conditions of its evolution are held by modern scientists. Some maintain that there are molten masses and nuclei of heat which are not continuous, but confined to certain localities, and that the main body of the earth is solid. Others stoutly adhere to the theory that the whole interior of our globe is a white hot liquid mass, surrounded by a crust, as the meat of an egg is contained within its shell. Seismic convulsions under this theory, would be explained by wave motions, like the quivering or breaking of ice on a lake; and volcanic upheavals would point to enormous steam pressure from the breaking through of water into the intensely heated masses below the crust. To support this theory they point to the following facts. The revelations of seismology seem to favor this solution of the knotty problem.

The shaft of the Comstock lode in Virginia City,

Nevada (known as the Big Bonanza) now reaches several thousand feet below the earth's surface. So severe is the heat in the lowest drifts, that workmen can endure it but two or three hours, and short shifts are resorted to, in order to continue the work. The same difficulties are encountered in deep mines in all parts of the world. It is a simple problem in mathematics, therefore, to estimate how much deeper the miner must bore, to reach a rock as white hot in its liquidity as is often belched from the crater of Moknaweoweo in Hawaii, or Aetna in Sicily.

From Spectrum analysis we learn that the sun and planets are composed of the same chemical constituents as the earth, and that Jupiter is as yet a molten mass whose crust is still in the first process of formation. It is hard to believe that our own planet was not at one time a liquid ball like Jupiter, and that the radiation of the heat into space has sufficiently cooled the surface to make it fit for the habitation of man.

As all heated masses contract in size when they throw off their caloric (instance the tire of a wheel) so the liquid interior of the earth must of necessity shrink a little as it loses its heat. The result of this would be a small space between the hard crust and the underlying liquid. For a while the rigidity of the shell (composed of hard rock 25 to 50 miles in thickness) would sustain itself like an arch, but in the course of time as this thin cavity extends laterally, the tension becomes too great, and something must give way. This subsidence or "downthrow" produces the vibration or wave motion called an earthquake. As the world grows older and the crust thicker earthquakes

will become less frequent and less violent; for as the crust blanket grows thicker less heat will be radiated and the earth shell will become more rigid.

All regions of the earth, whether they contain volcanoes or not, are subject to earthquakes. The quake at Lisbon, the disaster at Charleston, S. C., the terrible shocks in Assam and in India where no volcanoes exist, prove this. On the other hand, nearly all volcanic disturbances are preceded by earthquakes, though they seem to affect only the region adjacent to the volcano. From this we are led to conclude that there are two kinds of earthquakes; one caused by the upward pressure or strain of steam and gases under the volcano and the adjacent crust; the other the "downthrow" vibration, of which the disasters at San Francisco and Charleston are examples. The volcano quakes are only local and locally dangerous, while the latter may affect (as in the Lisbon quake) a quarter of the whole globe. It is not generally appreciated that earthquakes are nearly as common as rainstorms. They happen nearly every day, sometimes every hour in some part of the world, with more or less intensity. The records of quakes in Japan between 1885 and 1892 were 8,331, more than 1,000 annually, averaging nearly four daily. According to Prof. Milne, an authority in seismology, the world's daily quakes average forty or about one each half hour. Since the study of seismology was undertaken scientifically, there have been over 7,000 disastrous quakes and 140,000 noted vibrations. It is estimated that between fifteen and twenty millions of the human race have perished in seismic disasters.

Strangely enough, Japan, a half civilized nation, has taken the lead in the study of earthquake phenomena, and, from her we shall no doubt (as did the Czar of Russia) learn a few things we did not know before. The reports of the Seismological Society of Japan have already reached beyond the 14th volume. The Japanese are not only closer observers of the phenomena, but they have usually a large and varied stock of domestic quakes on hand; while we are compelled to study mostly the imported varieties. On the 28th of October, 1891, Central Japan was shaken by an earthquake, which in thirty seconds killed 10,000 people, and injured 20,000 more. One hundred and twenty-eight thousand houses were leveled to the ground, while forest covered mountains were denuded of verdure and the soil of hillsides swept into the valleys. The whole crust of the earth seemed to crack, and a rift or "fault" sixty miles long was made. One side of this rift dropped twenty feet below the other. This terrible disaster woke up the scientists of Japan to investigate. They found that a part of their eastern coast was rising and other shores settling. By a close study of their seismographs (and they have invented superior instruments to our own) they have been able to locate the focus of seismic trouble at a point in the ocean east of Japan. By this discovery the layers of ocean cables have been warned away from the locality, avoiding the catastrophe which overtook the Australian cables, all three of which were cut off simultaneously by an ocean bed quake.

The Australians taking this as the first act in a dec-

laration of war against Great Britain called out with great expense their whole army and navy.

It is beyond the scope of this chapter to detail all the late discoveries in this science, but sufficient to say that it is a vast and very important field. Scientists hope to learn from their seismographs and seismometers where the storm centers of the earth's interior are, and what points are danger foci. They find that their instruments record disturbances occurring in any part of the earth's crust with great rapidity, and that they may often place more dependence on a seismogram sent by the earthquake itself, than upon a telegram. The former tells the truth, while the human message may exaggerate or minimize the real gravity of the shake. From a comparison of records at different stations, on opposite sides of the earth, we learn that the body of the earth increases in density from the crust downward. It has also been discovered that serious quakes have their echoes, which come and go with decreasing force until dissipated. It appears also that after a violent shake, there are other vibrations from the same focus, which bear such relations to each other that seismologists expect to formulate from them an equation or curve, which will point exactly to the time when complete quiescence will be restored in that region.

From the Japanese investigations we gather the fact that the slopes of mountain ranges running sharply to low ocean beds have the most frequent and violent earthquakes. This is true of Japan, which falls rapidly toward the Pacific bed on the east. We notice that the western slopes of the Rockies and Andes are

frequently shaken while their Atlantic slopes are seldom visited by quakes. This leads us to conclude that the backbone of the American continent, being in reality a wrinkle or ridge in the earth's crust is still in a formative stage. The vast depth of the Pacific near the American coast makes the crust both weak and thin in that longitude.

We notice that toward the frozen latitudes seismic and volcanic action is less marked, the tropics being the most subject to them. From this we cannot but argue that the heat of the sun at the equator has retarded the cooling off of the crust in those regions, while the frosts of the higher latitudes have accelerated its thickening in the temperate and frigid zones.

Another feature which should not be overlooked is the fact that the severest earthquakes occur in regions where volcanic rocks are unknown. This would seem to argue that the volcano serves as a safety valve for the regions adjacent to it. The only earthquakes felt in Java and Hawaii are those caused by the throes of their respective volcanoes. No such awful catastrophes as those of Caracas, Lisbon or Assam have ever been known in lands where volcanoes existed. During the terrific explosion of Krakatoa (the most violent in history) only a slight tremor of the earth was felt. This is considered most remarkable and would indicate that earthquakes originate many miles below the surface and are propelled by mightier powers than gas or steam. In other words the propulsive force is the enormous gravity of the crust itself.

The main business of volcanoes appears to be the ejection of ashes. At first thought, this seems to be

a terrible calamity for those whose lands are covered by the ejecta. But history proves that in the end the cinders are a blessing rather than a curse. These cinders are made from the lava rock in Vulcan's laboratory and are caused by the contact of water with the white hot liquid. They are exploded lava crystals, very light and porous in texture. When exposed to the erosive action of water, air and plant roots they disintegrate into the best kind of soil. The plain on which Honolulu is built stands between two old volcanoes, Punchbowl and Diamond Head. Until water was piped from the mountain, this plain was dry and desert like. But the craters had once strewn it with a deep layer of black cinders, very much resembling coarse gunpowder. Today these ashes have made Honolulu a veritable garden of Eden—one of the most beautiful tropical cities on earth.

It is often wondered why the Italians swarm so thickly in the vicinity of Vesuvius, and why so many large cities have sprung up in its very shadow. The answer is simple. With every throe of the volcano a sprinkling of cinders and cosmic dust is rained upon the Campagna. Around sixty dollars per acre is paid by many tenants as annual rental. The lands are fertilized as well as devastated. This may sound like a paradox, but statistics prove that volcano countries are often very prosperous through the richness of their soil. The islad of Java, with fifty-six volcanoes, has a population of over 15,000,000 (or equal to that of Spain), while its sister islands, Borneo and New Guinea, without volcanoes, are practically destitute of population. The Sandwich Islands or Hawaii are en-

tirely volcanic. Here sugar lands command from $200 to $500 per acre, while in Central America, with similar climate and 3,000 miles nearer the world's markets, good lands can be secured for less than $5.00 per acre. The soil of Sicily, the Azores, Lipari, and many other populous islands, has been enriched by the gifts of such volcanoes as Aetna, Teneriffe and Stromboli.

The hot mud showered with a liberal hand from craters located near the ocean, is also another source of profit to man, though we seldom hear of any thanks being returned for it. This fertilizer doubtless comes mainly from the bed of the ocean. When "downthrows" occur there, the oozy sediment is washed through the fissures. Being lighter than the liquid rock, it floats on its surface, and is shot up through the nearest volcano chimney by the force of steam. Of course this ooze is very rich in fertile remains of marine animal and plant life, phosphates, etc.

The usefulness of lava itself to mankind is less apparent. There are usually two kinds ejected. One is quite compact when cooled and requires hundreds of years' exposure to moisture and air to disintegrate into soil. The other is light and porous. In Hawaii the hard species is called pohoehoe, and the spongy kind a-a. The latter usually floats on the former while the river is in motion, and is piled up in heaps and raspy fragments. This a-a is probably the same material as the hard lava, but is churned into a frothy consistence by the vapors and gases in the volcano, and the steam from wet ground over which the hot river flows. In a moist climate the a-a disintegrates to a mould in the

course of ten to twenty years, and produces a luxurious vegetation.

The lava and cinders probably represent a composite of all the minerals found in the body of the earth. As bread and butter contain all the elements of nutrition for man, so volcanic soil contains all the necessary food for plant life. It is a remarkable fact that Kaui, the oldest island of the Hawaiian group, has the deepest soil and produces the biggest crops of sugar cane. As high as ten tons of raw sugar to the acre has been produced in one crop.

One of the most curious volcano products is pumice or rotten stone, called by sailors "Hell-broth." It is seldom known at Hawaii, but the seaside volcanoes of the Mediterranean and Java produce it in enormous quantities. In color it is white or reddish like chalk. It is so light that pieces as large as a man's head will often float for years on the ocean until the barnacles and shell fish which attach themselves drag it to the bottom. Analyzing it we find 72% silica, 17% alumina, 9% soda and potash, with 2% iron oxide. It is largely used for polishing wood, glass and metals. After Krakatoa's terrible explosions, navigators found hundreds of square miles of the Indian ocean covered with it. In some waters the deposit was a foot and a half thick, impeding the progress of the steamer. The "white cinders thrown out from seaside volcanoes are mainly the dust of pumice." Experts in vulcanology tell us that pumice is the product of lava and sea water; it is a froth that forms on the top of the molten rock, after the steam from the ocean deluges has been forced through it.

MOUNT KILAUEA, HAWAII—THE LARGEST ACTIVE VOLCANO IN THE WORLD.
The crater of this great volcano is about eight miles in circumference, and is in ceaseless activity. Molten lava, rocks, mud, etc., are thrown up throughout the year.

Not the least useful product of Vulcan's factory is sulphur. Mankind use it mostly in the form of gunpowder for destroying each other. Then to compensate for their hard-heartedness they make a desperate effort to restore life by using sulphur baths and sulphur vapors. To imitate the volcano in destructiveness, they use sulphur matches in burning down large cities and other valuable properties. The mineral is used in a thousand ways in the arts and manufactures. From the enormous quantities thrown out by all volcanoes one would imagine that the globe's interior was a vast brimstone laboratory. At the crater of Kilauea in Hawaii, below and around its rim lie huge banks of sulphur miles in extent, hundreds of feet deep and almost pure. For thousands of years millions of tons have been accumulating here. From the villainous odor of its vapors the native Hawaiians have named it Kukai-Pele (the ejecta of the Fire God); yet, notwithstanding this opprobrious epithet, they make a very funny use of it in their domestic economy. These brimstone banks are constantly fervent with heat from chimneys or blowholes leading down to the lower world. The Kanakas on "baking day" bring hither their suckling pigs, legs of goat, poi fattened puppies, sweet potatoes, Kalo and yams. After excavating a little cave within the sulphur bank they place therein these delicacies well wrapped in mats and wet banana leaves. Then closing the cave with moist earth they leave it in the care of the fire goddess. Several hours later the oven is opened and the victuals (steam baked) will tickle the palate of the daintiest epicure. Verily, how are the mighty fallen! Years ago the Kanakas of Ha-

waii worshiped the mighty Fire Goddess Pele, as the creator of the Universe, with abject fear; now they actually make her "chief cook and bottle washer." Strange to say, the viands do not seem to retain any of the flavor of the sulphur.

One of the strangest oddities that comes out of the volcano is an article known as Pele's hair, or "the tresses of the fire goddess." It has seldom been known in any other volcano than Mauna Loa, and even there was not found except on the leeward side of Kilauea crater. After an active period the ground for miles would be covered, and in the fissures, caves and ravines it lay yards deep in banks and drifts. On first sight one would swear that it was a fleece of coarse brown wool, but under a microscope it developed into a mat of long silky hairs of spun glass, each ballasted with a tiny drop of black lava. For a long time their source was an enigma to the scientists, until one day a savant forked up a mass of liquid lava from the lake and noticed that the fierce wind then blowing whisked away from it long threads of a golden color. He then noticed to the leeward of the fire fountains as they shot into the air were clouds of misty webs like sprites floating in the air. Then it dawned on him that the wind caught little projections on the fire fountains, and these, spinning out long threads, were carried for miles like spider webs in the air. They have no commercial value, except perhaps to assist in enriching the soil. When the substance is handled, one's fingers are pricked with the sharp spicules. Only when the fire fountains are thrown high in the air in a strong gale of wind can the Pele's hair be produced.

CHAPTER XXXIII

LEGENDARY ROMANCES OF CRATERS

To Mount Shasta.

I stood where the thunderbolts were wont
To smite thy Titan's fashioned front;
I heard huge mountains rock and roll;
I saw the lightning's gleaming rod
Reach forth and write on heaven's scroll,
The awful autograph of God!

—Joaquin Miller.

Sublime expositions in Nature are sure to give rise to tales of mystery. The mythology of the ancient Norsemen taking root in the imagination of Wagner gave the world its grandest operas. From tales of the ancient Druids softened by generations of growth with the passing of the Britians through the romantic periods, the childhood, youthdom and adolescence of a nation's development, Shakespeare created his unapproachable plays. Since the days of Homer the poet has made free use of the superstitions of his age to form the machinery of his dramas.

In our own country there is lying, almost untouched, rich mines of these mythological tales by which the native Americans gave expression to their hopes and fears for this life and the life to come:

"Lo, the poor Indian whose untutored mind
Sees God in clouds and hears Him in the wind,"

sang Alexander Pope. This is a fine poetic figure, but it does not express the height to which the American aborigine's thoughts of the great spirit ascended. The Indian in his undebauched state was of a highly religious nature. It is true he had no written scripture; he had no written history of any kind. But like the old Asyrians, the shepherd astronomers, he lived night and day under the open canopy of the heavens and saw the sublime march of the sun through the blue vault of day, the unbroken swing of the circling stars at night, and was reverent. Out of the feelings born of generations of such unbroken contemplation, his mind, unaffected by schemes of trade or conquest, formed a mythology that makes alive the fields and woods, streams, lakes and mountains of the whole continent. No flower so small, no blade of grass so humble but to the Indian it was the dwelling place of some invisible spirit. No lake or mountain but had its ruling god or goddess with a train of courtiers obedient to the prince to which they were attached.

And the forces of Nature that worked destruction to their villages of skins and bark, the lightning that struck down their proud chiefs or their weakest child, unmindful of rank or of helplessness, these were naturally personified as evil spirits, under the rule of a genius, only less powerful than the great spirit to whom they sent up their offerings.

In regions where volcanoes and earthquakes occur the primitive people have the greater cause for believ-

ing in an evil agency that for its own vengeance wreaks sudden and widespread havoc among the children of men. The legends of these people are many and striking. From the mythological creatures of the great volcanoes writers of a mystical turn of mind have made many weird and thrilling tales. Among the most artistic of these is a story by a French author, founded on the myth of the spirit that rules in the great crater of Pelee. It is as follows:

The Legend of Mount Pelée.*

"You who listen," began old Catherine, bringing her stool nearer the fire, "you who listen, large and small, do not forget that this is a true story, true as God's own, this story of Big Sonson who was burned by the spirit of the mountain. My mother, as you all know, was old enough to have seen this with her own eyes."

Outside, a fresh breeze was blowing from the rounded sides of Mount Pelée, laden with the strong odor of the woods well known to those who have traveled in the West Indies.

In the dark, blue sky, where only the largest stars were visible, the moon shone brightly. Large moving shadows played to and fro, at the foot of every tree. Yonder, stretching to the left, lay the City of St. Pierre, pleasing and pretty, with its craggy hills, its red roofed houses, climbing over each other up the mountain, and the sharp steeples of her three churches.

We were all anxious to hear the story of Le Grand

* By M. Rizon. Translated by Mme. E. Fleury Robinson.

Sonson, which none of us had ever heard. The singing of the kettle alone disturbed the silence.

" It was a long time ago on the Habitation Potiche," murmured Catherine, as if speaking to herself.

" My grandmother knew Big Sonson as I know you, for she lived at the Habitation, where the master had given her a cabin.

" In exchange, my grandmother was to clean the lawn in front of the house.

" As she was already very old, she spent the whole morning at this task, and at noon she always found in the kitchen some good bit which she carried away in her calabash.

" Ah! Mr. Beauregard was a good master! Yes, and his son, Mr. Loulou! ' Ti-maître,' as we called him.

" There was also Mamselle Mayotte, Mr. Loulou's sister. A pretty young girl, who played the piano so beautifully and was so good, so kind to the unfortunate.

" She had a trusty maid, a young negress called Titine.

" Wherever Mlle. Mayotte went, Titine accompanied her. You ought to have seen them, on Sunday, when they went to mass, in the large four-seated carriage drawn by two beautiful American mules!

" Ah! Titine was also very pretty, with her red skirt, white chemisette and a little silk handkerchief around her neck!

" Well, Le Grand Sonson fell in love with this pretty negress, so much so that he could neither eat, drink or sleep.

" When his work was finished in the evening he stayed in his cabin instead of going to play at ' toutilles '

with the other hands. He remained there alone, thoughtful and sad, smoking his pipe and imagining he saw in the smoke the seductive form of pretty Titine.

" Finally, one Saturday night, he could stand it no longer, and decided to speak the next day to her who had stolen his heart, to tell her his love and propose to marry her.

" Their meeting took place in the servant's hall, after the master's dinner.

" Grand Sonson had dressed for the occasion. A shirt of blue linen with starched collar, grey trousers elegantly turned up, a belt of red flannel wound six times around his body, and on his head one of those wide brimmed hats, trimmed with a red ribbon.

" No shoes. But he was not the only one at the Habitation who did not own these leather bonds, that cause so much suffering to those unused to them.

" Besides, Titine had none either!

" Titine was eating the leg of a chicken left by her mistress, on a little table set apart.

" The other servants were eating at the other end of the room, talking pleasantly.

" The coming of Sonson, who did not belong to the house servants, created a sensation.

" 'Well! Sonson,' cried a small negro employed as stable boy, ' are you coming to help me groom Colibri.'

" ' Keep quiet, Ti-Yean,' said the cook, ' Mr. Sonson is too much in fear of Colibri for that, and he would spoil his clothes. See how fine he is!'

" A burst of laughter greeted this joke, but Sonson came forward to the center of the hall.

" 'Good day, everybody!' he said looking around.

"His eyes spied Mlle. Mayotte's maid and he went to her.

"'Titine,' he whispered.

An astonished look was the only answer of the pretty girl, and looking down again, she continued to eat, as if nothing had happened.

"The others looked at each other curiously.

"'Mamzelle Titine,' repeated the unfortunate lover, taking off his hat.

"'What is the matter?' asked Titine turning to him.

"'I want to speak with you,' he said painfully.

"'Well, I am listening, Grand Sonson.'

"'It is to tell you——to tell you——'

"He could not say it. The poor fellow had presumed too much.

"'What?' asked Titine, who seeing herself observed by the other servants, was quite nervous.

"Then, speaking quickly, he said in a low voice:

"'If you will, I shall speak to the master about being married, because I think you are very pretty, Mamzelle Titine.'

"He had dropped his hat and pressed his hand on his chest in a comical way.

"For a time, the young negress shook with laughter and all the servants rose and came near Titine and her lover.

"'What is the matter,' they all cried.

"'Grand Sonson wants to marry me,' she cried, still laughing.

"'It was for this that he dressed so fine,' spitefully spoke the cook who had never had a proposal.

"'You are too big for one wife, Sonson, my friend,'

said Ti-Jean, 'you must ask the master for two, at least.'

"There was great fun, all laughed loud, splitting their sides.

"'First of all,' said Titine, seriously, 'I do not love you, Mr. Sonson, then I do not want to leave my mistress, and then——you have no beard.'

"Every one looked at Sonson's smooth face. Did he blush? No one could tell, but he picked up his hat and left, murmuring:

"'All right.'

"Several weeks passed, and like all unrequited love, Sonson's love increased with time.

"And when the disdainful one passed by his cabin, a pain shot through his heart, a pain caused by his rejected love and the mockery he had borne yonder, that Sunday in the kitchen when he had made bold to speak.

"Little by little, in this primitive soul, entered a desire for vengeance that slowly took possession of him.

"'Yes,' he said to himself during his evening musings, 'I shall force her to love me, whether willing or not! I shall marry her! And the others shall no longer laugh.'

"Then he thought he would go to Goué-Goué, the well known conjurer, whom every one feared because he brought evil to all.

"This Goué-Goué, an old yellow negro, was, in reality, the greatest poisoner in the island. He lived in a cave near the top of Mount Pelée, yonder near 'Trianon.'

"His master, the owner of Trianon, had him arrested and brought to the Habitation several times, but the

old fellow always escaped after poisoning some animal, horse or ox.

"Tired of the struggle, he had been let alone. He lived in a cave, from the fruits of his thefts, vegetables and other eatables brought by those who came to consult him.

"One evening when his task was done Big Sonson started to go and ask the conjurer's advice.

"After having accepted the sweet potatoes and piece of codfish Titine's lover had brought, Goué-Goué asked his visitor to tell his story.

"'I understand,' he said slowly when Sonson had spoken, 'but what you ask is very difficult, and perhaps you will give up your idea when I tell you what I need to compose the philter you want.'

"'Speak anyway, grumbled Sonson.

"'I must have the heart of a white rooster, the heart of a sucking pig, and the heart of a little child.'

"'What!' said Sonson, horrified.

"'And,' coolly continued Goué-Goué, 'as she whom you love is a negress, it must not be the heart of a negro child, the philter would be worthless.'

"'Then,' said Sonson discouraged, 'it is impossible! I might kill a pig and a rooster to bring you their hearts, but a child! Oh!'

"'Who says you must do it,' cried Goué-Goué, with a gesture of impatience. 'Bring me the child, the rooster and the pig, and I will do the work myself, but you shall pay me.'

"'How can I pay you?' asked the poor fellow. 'You know we negroes have no money.'

"'For one year, every Sunday, you can bring me

provisions, that's all. You can easily procure the two animals I ask, there are plenty at your master's. As for the child, it will be easy enough. The Caribbeans, who live to the south of the island, in a little village of straw huts, leave the children for old women to watch, from Saturday evening until Sunday night, to go and sell their fruit and vegetables in St. Pierre. You have but to take one, no matter how small, he will do.'

"Three hours after this conversation Big Sonson, lying in his cabin, was musing over the conjurer's words. During the remainder of the week he fought against the horrible idea of stealing a child to be killed by Goué-Goué who would take his heart.

"Saturday came, Sonson still hesitated to commit the crime the old yellow negro had ordered. Just that evening, Mlle. Mayotte, accompanied by Titine passed by the cabins to visit the sugaries at work.

"Seated on his door step Sonson was smoking and dreaming, when he saw the young negress point him out to her mistress. Both went on, laughing.

"This was the last drop in the bucket for the poor wretch.

"Driven to despair by this mocking laugh, he hesitated no longer, and soon after left the Habitation.

"At dawn he arrived at the conjuror's, carrying a little child in his arms.

"Favored by the light of the moon a few hours sufficed to perfect his plan and carry its fruit to Goué-Goué.

"What took place between these two men during the

following morning? What diabolical practices did they perform? No one ever knew.

" But it happened that just at the hour of noon a thick column of smoke and fire which lasted until evening was seen to rise from the mountain top.

" It was the spirit of the mountain, the protector and creator of the good Caribbeans who avenged the death of one of their sons, throwing over the murderers the breath of his lungs.

" The next day and the following days Big Sonson was not seen at the Habitation. The master thought he had run away, and had him hunted, but in vain.

"Finally, it was told by the Caribbeans that a child of theirs had been stolen Saturday night, the night before Sonson disappeared, and some women who had seen him had recognized Titine's lover.

" It was thought that the wretch had gone to Goué-Goué for some terrible and malign influence and that both were burned by the mountain's fire.

" RIZON."

The people of Hawaii are a peculiarly simple and gentle people. They live in a climate the most salubrious, and until the Saxon race emigrated to the island and introduced modern customs and trade, they lived an ideal life. Their wants were few, their natures cheerful and kindly, and their trust in the continual supply of fruits sufficient for their food never betrayed. Only one fear possessed them. The crater of Mt. Pelee reared its giant head above the villages on the seashore and its deadly breath was likely at any time to be blown over the island to the destruction of thou-

sands. One of the legends of these people was to the effect that a spirit in form of a woman dwelt in the crater watching continually over the native people. This spirit would rise at any time to destroy strangers who should come to the island with evil intentions against the natives. Out of this legend was woven the following story:

The Avenging Spirit of Pali.*

A young Englishman stood on the deck of a sailing vessel coming into the harbor of Honolulu. He had been ranching in the wilds of Australia for three years, and was making his first return to the land of his birth, where a pair of blue eyes were waiting to give him a lover's welcome.

The vessel was several days overdue, and his brow clouded when he was told that the American ship which transferred the Australian passengers had sailed the day before. That meant a month or more in this out-of-the-way island. The man paced the deck and said unkind things of fate.

Down in the blue water about the ship half a hundred brown-skinned boys sported like so many porpoises, now standing in the water with hands outstretched, ready to catch any trifle flung to them, now floating motionless on the waves, now diving for a coin thrown into the sea and bringing it to the surface with a cry of triumph. On the wharf a group of women and young girls waited with baskets of flowers and fruits.

"Sunshine and color enough, certainly," mused the

* Written by Charles Eugene Banks. Copyrighted by the Daily Story Publishing Co.

Englishman. "A day or two of this wouldn't be bad; but a month——"

He passed to the wharf, gave his bag to a native boy and followed him into the town. They passed strange little shops where sleepy-eyed Mongolians and fat native women sat, while half-breed children played in the doorways, babbling in the musical language of the island.

He passed the day on the veranda of the quaint little hotel, inhaling the fragrance of the vines and flowers. Luscious mangoes, figs, guavas and tamarinds were within reach of his hand; tall palms and cocoanuts in the distance bowed with the slight breeze, as if giving him honorable welcome to this paradise. The low drone of numerous insects, the lazy hum of bees and the soft atmosphere soothed him, and he wondered dreamily if it would not be pleasant to stay here always. Then a pair of blue eyes looked at him accusingly out of the distance and he grew homesick.

That night there was a ball in the hotel, given in honor of the Jamestown, an American man-of-war lying in the harbor. A native band played weird minor airs, beautiful women and handsome men in uniform laughed, danced and flirted as they might have done in any city of the old world. But, somehow, nervous American gaiety seemed out of harmony with the soft voluptuousness of this tropic isle. Then the perfume of a jasmine flower, linked with the low notes of mellow laughter, drifted down the moonlight air, there was the rustle of silken skirts, the flash of a pair of soft dark eyes and he knew the queen of fairy land had come.

An elderly man, with a slight, girlish figure clinging lightly to his arm, stopped at his side.

"Pardon me," he said in good English, as he lightly brushed something from the young man's shoulder. "A centipede. You need not be alarmed. They are harmless, unless angered."

The young man bowed his thanks. He was startled, not at the thought of the insect, but at the beauty of the girl.

"It seems there are still disagreeable things in the Garden of Eden," he replied, his eyes upon the fair creature looking up at him with innocent curiosity. "Everything here is so beautiful," he continued, hurriedly, to hide his boldness. "You see, I am a stranger among you. My name is Crampton. I am on my way from Australia to England. We missed the ship for America and I must await her return."

The other extended his hand. "My name is Brickwood. Mr. Crampton, my daughter, Emaline." A soft, musical voice acknowledged the introduction, while dark, velvety eyes looked shyly into his. Then some one came to claim her for a promised waltz and she floated away, leaving the fragrance of jasmine trailing behind her.

The two men lighted cigars and talked. Crampton told enough of his affairs to win Brickwood's confidence. The elder man had settled on the island when it had few white occupants, had married a full-blooded native woman, the daughter of a chief. He was now postmaster. He spoke of his daughter with deep tenderness. She had been educated at St. Andrews' Priory, a school in charge of three English women, nuns

of culture and refinement. But she was just a simple native child, after all, he said, and he liked her so.

Long after the dancers had departed Crampton sat on the veranda, puffing clouds of smoke into the feathery moonlight, and thinking of a beautiful girl with bronze skin, gowned in soft silk and crepe, her only ornament a crown of jasmine flowers, the odor of which still lingered with him. He had accepted an invitation from her father to dine at their cottage the next day, and he longed for the morrow that he might see her again. She seemed a part of the music and moonlight of the new, delightful world. For the first time in years he retired that night without looking at the portrait in the back of his watch.

Into a vine-clad arbor of roses Crampton passed to be welcomed by the vision of the previous evening. Again he drank in the odor of the jasmine flower, again he wandered in elysium, entranced by the luster of those fawn-like eyes, again he heard the caressing tones of that flute-like voice. He was as one dazed by some strange spell, having its birth in a beauty new to him. But when her mother came into the room he felt a sudden shock, as though he had fallen from a height. She was an enormous woman, dark copper in color, with irregular features, deep, luminous eyes, a broad, flat nose and straight black hair. She wore but one garment, a loose robe of bright red silk. Could this be the mother of the beautiful creature who had so enraptured him? There was no resemblance save in her voice, which was low and mellow like that of the girl. She sang native songs, thrumming an accompaniment on a small instrument, half guitar, half

banjo. One of these songs, a wild, weird chant, moved the Englishman so that he asked for an interpretation of it. She told him it was the spirit song of the Pali. Many years ago there were several tribes on the island. They were continually at war with each other. Finally two great chiefs formed all the people into two armies and went out to battle for supremacy. The struggle was long and bloody. Many thousands were slain. At last Kamehameha defeated the followers of Oahua and drove them up the Newauna Valley to the top of the crater of Pali. On this mountain the last battle was fought and the Oahua and all his followers were driven or thrown over the cliff. After the great slaughter a mist arose and began to fall like tears on the dead. It had never ceased. And in this mist the spirit of Pali, the protecting spirit of the natives, has her home. When any one wrongs a descendant of a chieftain's line the spirit arises out of the mist and wreaks speedy vengeance.

While she recounted this legend the woman seemed to be inspired. Her immense body swayed back and forth in time to her words, her half-closed eyes burned with deep fires. Crampton felt his blood chill in his veins. The story fascinated him. It seemed to have some personal equation, to be in some subtle manner linked with his own future. He left the house his brain in a whirl. The beauty and gentleness of the daughter contrasted so vividly with the wild savagery of the mother. And the wild chant that had so transformed her still sounded in his ears. He was half resolved to break off the acquaintance. But as he turned down the long veranda a spray of jasmine fell upon his

shoulder and he caught the soft "aloha" which the girl had already taught him was the lovers' greeting and parting salutation. The spirit of the Pali faded from his mind and he fell asleep that night with the memory of that musical message whispering to his heart.

Time braided the days into ropes of flowers for Crampton. The languor of the climate stole into his blood and lulled him to sweet security. With Emaline he roamed about the island, enraptured with its beauty and his love of her. The picture of the blue-eyed Saxon girl in the back of his watch was forgotten. England with its turgid civilization seemed far away, unreal. He was intoxicated with his own thoughts. This half-wild, impulsive creature, who clung to him with such simple faith, was so in harmony with the surroundings, so much a part of the flowery little kingdom in the blue Pacific, that he could not separate her from it, nor himself from either. It was as if he had always lived this indolent dream life. They walked and rode and swam together. She taught him the liquid love words of her people, which was like the music of shallow waters rippling over pebbles. Sometimes they wandered to the summit of Pali and watched the misty tears falling into the depths where slept the heroes of an almost forgotten race. The place had a strange attraction for him, and sometimes he coaxed the girl into repeating the legend. But to her light heart the tragic tale held no charms. She was like a fawn that loves to play in the sunlight, without thought of the past or the future. He was sufficient to her.

But one day there came a vessel into the harbor and he awoke. His days of drifting were over. He must choose between ancestral home in a civilized country and this half-barbaric existence; take up the duties and burdens of activity, or embrace inaction; become for good and all a drone in the busy hive of the world's life. His Saxon blood rebelled at a future so cheap, so unimportant. It was a struggle, but his decision was made.

It was late in the afternoon. Crampton and Emaline had wandered far over the island, lingering in the flowery nooks that companionship had made dear to them. They stood now in the shadow of a palm half way up the crater of Pali. The sun, a chariot of fire, was rolling down toward the far-stretched line of the blue Pacific. In the harbor lay the ship that was to sail in the morning; the ship that was to put two oceans between them. He told her as they stood there; told her with the calm, steel-like tones of the Anglo-Saxon when he has to overcome himself. His face was drawn and white, but there was no tremor in his voice. He told her all, his duty, his prospects, even his engagement to the blue-eyed girl. When he had concluded she stood like a flower over which has passed the hot breath blown from a desert.

"Aloha nue loa oei," she murmured. "We are one. I live not but in you. You are all my life. I love you."

He would have answered her, but no words came to him. Like two statues of grief they stood in the soft sunlight.

Then suddenly from above they heard a hissing

sound. Out of the great mouth of Pali came a breath of steam that spread over their heads like a great fan. And in the center of it stood a dark cloud in shape like a woman. Above them it hovered, reaching out long, sinuous arms.

"The spirit! The spirit of Pali!" cried the girl, sinking to the ground and hiding her face from the light.

Crampton stood for a moment transfixed with horror. Again he saw the old woman, the mother of Emaline, as she recited the weird legend, "When anyone wrongs a descendant of a chieftain's line the spirit rises out of the mist to wreak speedy vengeance." The words rang in his ears like a clarion. He turned away with a shudder. Then the materialism of his race came to his rescue. He caught up the girl in his arms and ran down the declivity toward the sea. Glancing back he saw the shadow following them. On he plunged, an awful fear taking possession of him. He heard the hissing as of a great serpent behind him. Loose stones gave way under his feet and plunged down into the placid waters, cooing softly to the shore. Branches and briars tore at his flesh and retarded his speed. But he struggled on with his precious burden, fearing now to look behind. At last he reached the shore and plunged into the sea. Yet the mist pursued him and the dark figure bent ominously over their heads. Out, out into the sea he struggled. The girl, revived by the waters, kissed his cheek and murmured, "Aloha." The surf lifted them on its kindly bosom and bore them forward. Another swell, and yet another, and to one standing upon the sands they would

have been but a tiny speck on the distant blue. Then the mist with the black shadow in its center lifted and whirled about, returning to Pali. The spirit was avenged. But, clasped in each others' arms, the lovers drifted out to where none but God dwells and where love is the password to eternal bliss.

The earthquake of Lisbon, 1755, with the destructive tidal wave that followed it, came near plunging England into atheism. Pope and the poets, together with the leaders of the church had convinced rural England, which was always religious England, that everything was for the best. Then came the Lisbon earthquake. And the lingering disciples of Hobbes who said that all men were born enemies, arose and shouted, What purpose has God served by this slaughter of innocent women and children? And people who had never questioned His glory or His power? This question seemed so pertinent, was so hawked about in pamphlets, that at one time it seemed that the whole of England was on the verge of atheism. It required all the force of the church, all the persuasion of the great preachers, all of the rhetoric of apostolic enthusiasm to swing the kingdom back into her wonted orbit. On the other hand it is pointed out by the historian Buckle that in countries where there are earthquakes there is always more religious awe. But Achille Loria, the greatest of Italian thinkers on economics, points out the fact that in southern countries where the forces of nature have been least overcome by progress and invention all seismic disturbances are looked upon as a direct wrath of the Creator. Hence, in such countries God has been

the God of terror rather than the God of mercy, while in the more progressive North he has been the God of love.

The first description written by an eye-witness of a volcano in action was by the younger Pliny. This was the eruption of Mt. Vesuvius, A. D. 79, which completely destroyed the cities of Pompeii and Herculaneum. In this eruption the elder Pliny lost his life. His nephew, who was with him at the time, gives a detailed account of his uncle's behavior during the awful rain of ashes and lava which lasted for three days, during which time the whole country was plunged in utter darkness.

The account of this eruption is not only valuable as the first authentic account of such a tremendous spectacle, but it is a model of descriptive writing. From it can be gathered, too, the best estimate of the effect of the stoic philosophy on its greatest exemplars. Pliny stands in the presence of that terrible cataclysm, calm and serene, looking with keen eye upon the emotions aroused in his companions. He notes with rare discretion the appearance of the surrounding country, and describes with wonderful calm the terrifying aspects of the active volcano. The letter written to Cornelius Tacitus is as follows:

"Your request that I would send you an account of my uncle's death, in order to transmit a more exact relation of it to posterity, merits my acknowledgments; for, if the glorious circumstances which occasioned this accident shall be celebrated by your pen, the manner of his exit will be rendered forever illustrious.

"Notwithstanding he perished by a misfortune, which, as it involved at the same time a most beautiful country in ruins, and destroyed so many populous cities, seems to promise him an everlasting remembrance; notwithstanding he has himself composed many works which will descend to the latest times; yet, I am persuaded, the mentioning of him in your immortal writings will greatly contribute to eternize his name.

"Happy I deem those to be whom the gods have distinguished with the abilities either of performing such actions as are worthy to be related, or of relating them in a manner worthy of being read; but doubly happy are they who are blessed with both these uncommon endowments; and in that number my uncle, as his own writings and your history will prove, may be justly ranked.

"It is with extreme willingness, therefore, I execute your commands; and I should, indeed, have claimed the task if you had not enjoined it. He was at that time with his fleet under his command, at Misenum. (In the Gulf of Naples.) On the 24th of August, about one in the afternoon, my mother desired him to observe a cloud which appeared of a very unusual size and shape. He had just returned from enjoying the benefit of the sun, and, after bathing in cold water, and taking a slight repast, was retired to his study; he immediately arose, and went out upon an eminence, from whence he might more distinctly view this very singular phenomenon. It was not at that distance discernible from what mountain this cloud issued, but

it was found afterward to proceed from Vesuvius. (About six miles from Naples.)

"I cannot give you a more exact description of its figure than by resembling it to that of a pine-tree; for it shot up a great height in the form of a tall trunk, which spread at the top into a sort of branches; occasioned, I suppose, either that the force of the internal vapor which impelled the cloud upwards, decreased in strength as it advanced, or that the cloud, being pressed back by its own weight, expanded itself in the manner I have mentioned; it appeared sometimes bright, and sometimes dark and spotted, as it was either more or less impregnated with earth and cinders. This uncommon appearance excited my uncle's philosophical curiosity to take a nearer view of it. He accordingly ordered a light vessel to be prepared, and offered me the liberty, if I thought proper, to attend him. I rather chose to continue the employment in which I was engaged; for it happened that he had given me a certain writing to copy.

"As he was going out of the house with his tablets in his hand he was met by the mariners belonging to the galleys stationed at Retina, from which they had fled in the utmost terror; for the port being situated at the foot of Vesuvius, they had no other way to escape than by the sea. They conjured him, therefore, not to proceed and expose his life to imminent and inevitable danger. In compliance with their advice he changed his original intention, and, instead of gratifying his philosophical spirit, he resigned it to the more magnaminous principle of aiding the distressed. With this view he ordered the fleet immediately to put to

sea, and went himself on board with the intention of assisting not only Retina, but the several other towns which stood thick upon that beautiful coast.

"Hastening to the place, therefore, from whence others fled with the utmost terror, he steered his course direct to the point of danger, and with so much calmness and presence of mind, as to be able to make and dictate his observations upon the appearance and progress of that dreadful scene. He was now so near the mountain that the cinders, which grew thicker and hotter the more he advanced, fell into the ships, together with pumice stones and black pieces of burning rock; they were likewise in danger, not only of being aground by the sudden retreat of the sea, but also from the vast fragments which rolled down from the mountains and obstructed all the shore.

"Here he stopped to consider whether he should return back; to which the pilot advising him, 'Fortune,' he said, 'befriends the brave; steer to Pomponinus.' Pomponianus was then at Stabie (now called Castel é Mar di Stabia, in the Gulf of Naples), separated which the sea, after several insensible windings, forms upon that shore. Pomponianus had already sent his baggage on board; for though he was not at that time in actual danger, yet, being within the view of it, and, indeed, extremely near, he was determined, if it should in the least increase, to put to sea as soon as the wind should change. It was favorable, however, for carrying my uncle to Pomponianus, whom he found in the greatest consternation; and embracing him with tenderness, he encouraged and exhorted him to keep up his spirits. The more to dissipate his fears he or-

dered his servants, with an air of unconcern, to carry him to the baths; and, after having bathed, he sat down to supper with great, or at least (what is equally heroic) with all the appearance of cheerfulness.

"In the meanwhile, the fire from Vesuvius flamed forth from several parts of the mountain with great violence; which the darkness of the night contributed to render still more visible and dreadful. But my uncle, in order to calm the apprehensions of his friend, assured him it was only the conflagrations of the villages which the country people had abandoned. After this he retired to rest, and it is most certain he was so little discomposed as to fall into a deep sleep; for, being corpulent, and breathing hard, the attendants in the antechamber actually heard him snore.

"The court that led to his (my uncle's) apartment being now almost filled with stones and ashes, it would have been impossible for him, if he had continued there any longer, to have made his way out; it was thought proper, therefore, to awaken him. He got up and joined Pomponianus, and the rest of the company, who had not been sufficiently unconcerned to think of going to bed. They consulted together whether it would be most prudent to trust to the houses, which now shook from side to side with frequent and violent concussions, or flee to the open fields, where the calcined stones and cinders, though levigated indeed, yet fell in large showers and threatened them with instant destruction.

"In this distress they resolved for the fields as the less dangerous situation of the two; a resolution which, while the rest of the company were hurried into by

their fears, my uncle embraced upon cool and deliberate consideration. They went out, then, having pillows tied upon their heads with napkins; and this was their whole defense against the storm of stones that fell around them.

"It was now day everywhere else, but there a deeper darkness prevailed than in the blackest night; which, however, was in some degree dissipated by torches and other lights of various kinds. They thought it expedient to go down farther upon the shore, in order to observe if they might safely put out to sea: but they found the waves still running extremely high and boisterous. There my uncle, having drunk a draught or two of cold water, laid himself down upon a sail cloth which was spread for him; when immediately the flames, preceded by a strong smell of sulphur, dispersed the rest of the company, and obliged him to rise. He raised himself up, with the assistance of two of his servants, and instantly fell down dead; suffocated, I conjecture, by some gross and noxious vapor, as having always had weak lungs, and being frequently subject to a difficulty of breathing.

"As soon as it was light again, which was not till the third day after this melancholy accident, his body was found entire, and without any marks of violence, exactly in the same posture in which he fell, and looking more like a man asleep than dead."

This letter seems to have aroused the curiosity of Tacitus to be more fully informed concerning the Vesuvius eruption, for it was not long before Pliny sent another communication, giving a far more complete description of the volcano, and its effect upon the peo-

ple and the surrounding country. This letter is in the same simple style, but the power of its description has not been equaled since that time, nearly two thousand years ago. It might have been taken almost literally for a description of the recent eruption of this great volcano. Pliny writes as follows to Tacitus:

"The letter which, in compliance with your request, I wrote you concerning the death of my uncle, has raised, it seems, your curiosity to know what terrors and dangers attended me while I continued at Misenum; for there, I think, the account in my former broke off:

"'Though my shocked soul recoils, my tongue shall tell.'

"My uncle having left us, I continued the employment which prevented my going with him, till it was time to bathe; after which I went to supper and then fell into a short and unquiet sleep. There had been, during many days before, some shocks of an earthquake, which the less alarmed us as they are frequent in Campania; but they were so particularly violent that night, that they not only shook everything about us, but seemed, indeed, to threaten total destruction. My mother flew to my chamber, where she found me rising in order to awaken her. We went out into a small court belonging to the house, which separated the sea from the buildings. As I was at this time but eighteen years of age, I know not whether I should call my behavior, in this perilous conjuncture, courage or rashness; but I took up Livy, and amused myself

with turning over that author, and even making extracts from him, as if I had been perfectly at my ease.

"While we were in this situation, a friend of my uncle's, who was just come from Spain to pay him a visit, joined us, and observing me sitting by my mother with a book in my hand, reproved her patience, and my security; nevertheless, I still went on with my author.

"It was now morning, but the light was exceedingly faint and languid; the buildings all around us tottered, and, though we stood upon open ground, yet, as the place was narrow and confined, there was no remaining without imminent danger; we therefore resolved to leave the town. The people followed us in the utmost consternation, and (as to a mind distracted with terror, every suggestion seems more prudent than its own) pressed in great crowds about us in our way out.

"Being advanced at a convenient distance from the houses, we stood still, in the midst of a most hazardous and tremendous scene. The chariots which we had ordered to be drawn out were so agitated backward and forward, though upon the most level ground, that we could not keep them steady, even by supporting them with large stones. The sea seemed to roll back upon itself, and to be driven from its banks by the convulsive motion of the earth; it is certain, at least, the shore was considerably enlarged, and several sea animals were left upon it.

"On the other side (of the bay) a black and dreadful cloud bursting with an igneous serpentine vapor, darted out a long train of fire, resembling flashes of lightning, but much larger. Upon this, our Spanish

friend, whom I mentioned before, addressing himself to my mother and me, with great warmth and earnestness: 'If your brother and your uncle,' said he, 'is safe, he certainly wishes you may be so too; but if he is perished, it was his desire, no doubt, that you might both survive him; why, therefore, do you delay your escape a moment?' We could never think of our own safety, we replied, while we were uncertain of his; upon which our friend left us, and withdrew from the danger with the utmost precipitation.

"Soon afterward, the cloud seemed to descend, and cover the whole ocean; as, indeed, it certainly hid the island of Caprea (an island near Naples, now called Capri), and the promontory of Misenum.

"My mother conjured me to make my escape at any rate, which, as I was young, I might easily effect; as for herself, she said, her age and corpulency rendered all attempts of that sort impossible; however, she would willingly meet death, if she could have the satisfaction of seeing that she was not the occasion of mine. But I absolutely refused to leave her, and, taking her by the hand, I led her on; she complied with great reluctance, and not without many reproaches to herself for being the occasion of retarding my flight.

"The ashes now began to fall upon us, though in no great quantity. I turned my head, and observed behind us a thick smoke, which came rolling after us like a torrent. I proposed, while we had yet any light, to turn out of the high road, lest she should be pressed to death in the dark by the crowd that followed us.

"We had scarcely stepped out of the path when darkness overspread us, not like that of a cloudy night,

or when there is no moon, but of a room when it is shut up, and all the lights are extinct.

"Nothing, then, was to be heard but the shrieks of women, the screams of children, and the cries of men; some calling for their children, others for their parents, others for their husbands, and only distinguishing each other by their voices; one lamenting his own fate, another that of his family; some wishing to die, from the very fear of dying; some lifting their hands to the gods; but the greater part imagining that the last and eternal night was come, which was to destroy both the gods and the world together. Among these there were some who augmented the real terrors by imaginary ones, and made the frighted multitude falsely believe that Misenum was actually in flames.

"At length, a glimmering light appeared, which we imagined to be rather the forerunner of an approaching burst of flames (as in fact it was) than the return of day; however, the fire fell at a distance from us. Then again we were immersed in thick darkness, and a heavy shower of ashes rained upon us, which we were obliged every now and then to shake off, otherwise we should have been overwhelmed and buried in the heap.

"I might boast, that, during all this scene of horror, not a sigh, or expression of fear, escaped from me, had not my support been founded on that miserable, though strong, consolation, that all mankind were involved in the same calamity, and that I imagined I was perishing with the world itself.

"At last this terrible darkness was dissipated by degrees, like a cloud, or smoke; the real day returned,

and even the sun appeared, though very faintly, and as when an eclipse is coming on. Every object that presented itself to our eyes (which were extremely weakened) seemed changed, being covered with white ashes as with deep snow. We returned to Misenum, where we refreshed ourselves as well as we could, and passed an anxious night between hope and fear; though, indeed, with a much larger share of the latter; for the earth still continued to shake, while several enthusiastic persons ran wildly among the people, throwing out terrifying predictions, and making a kind of frantic sport of their own and their friends' wretched situation. However, my mother and I, notwithstanding the danger we had passed, and that still threatened us, had no intention of leaving Misenum till we should receive some account of my uncle.

"And now you will read this narrative without any view of inserting it in your history, of which it is by no means worthy; and, indeed, you must impute it to your own request, if it should appear not to deserve even the trouble of a letter."

Thus ends Pliny's account, at once the most complete humane and graphic ever written of such a terrible scene.

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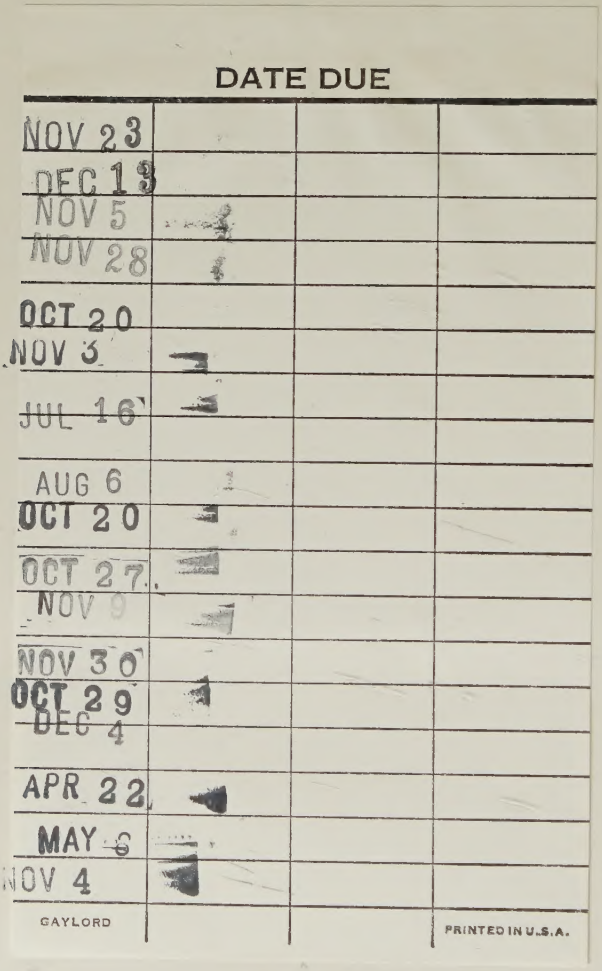

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